

# ARIZONA MEDICINE

*Journal of ARIZONA MEDICAL ASSOCIATION*

VOL. 9, NO. 6



JUNE, 1952

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# ARIZONA MEDICINE

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## Original ARTICLES

### POLIOMYELITIS—ITS CLINICAL ASPECTS AND TREATMENT

Sebastian R. Caniglia, M. D.

Phoenix, Arizona

Poliomyelitis is a highly prevalent viral infection of which only a small portion of cases are clinically identifiable. Epidemics of poliomyelitis usually occur during the warm months but sporadic cases may occur throughout the year. The virus known to cause this condition usually attacks the anterior horn cells of the spinal cord and the motor nuclei of the brain, although other parts of the nervous system and other systems may also be affected. Careful sectioning of autopsy specimens in man have also shown involvement of the precentral gyrus of the motor cortex and severe lesions of the reticular formation of the medulla. Frequently involved are: (1) the red nuclei; (2) the substantia nigra; (3) the olivary nucleus; (4) the roof nuclei of the cerebellum; (5) the vestibular nuclei; (6) the internuncial neurones of spinal cord and (7) the proprioceptive cells of the posterior ganglion. Opinion differs in regard as to how the virus enters the body. It was formerly believed that the nasal mucosa was the pathway through which the virus reached the central nervous system. Recently the tendency has been to consider the portal of entry may be in the alimentary tract, particularly the pharynx and the intestinal mucosa. There is no practical test by which the susceptible individual may be distinguished from the person who is immune. A previous attack of the disease even if it has been so mild that it has not been recognized usually confers immunity, although there are recorded cases of a second attack.

Although the portal of invasion is not clearly determined it seems fairly certain that the virus travels along peripheral nerves to the central nervous system and then spreads by neuronal pathways to the motor cells which are located in the anterior horn cells of the spinal cord. The skeletal muscles of the trunk, arms and legs are enervated by these motor cells and injury to them will resolve in weakness or paralysis of the muscles which they control. Although the muscle fibers themselves are not damaged by the virus, destruction of the nerve cells renders them useless. Nerve cells can not regenerate and once destroyed are gone forever. What happens when nerve cells are only temporarily damaged is not so well understood. It is thought that transitory loss of function of the nerve cells may be due to inflammation in surrounding tissues. The resultant edema may block the nerve impulse to the muscle and if this has occurred the recovery of the muscle function may result when the inflammation and swelling subsides. Occasionally the blood supply to the nerve cells may be partly shut off by the blockage of the minute vessels which supply them or by hemorrhages into the surrounding tissues. In such cases recovery may be slow but can be expected to occur when the cause of the anemia of the nerve cells is no longer present. Fortunately, complete destruction of all anterior horn cells rarely occurs. In most instances there is a patchy distribution of the damaged cells resulting in weakness or paresis rather than in paralysis. Furthermore whatever damage is done to the cells occurs during the acute stage.

Read before Sixtieth Annual Meeting of the Ariz. Med. Assoc. April 30, 1941.

The condition is not progressive and there is no danger of relapse.

Clinical types of poliomyelitis generally accepted today are:

(1) Abortive, (2) Non-paralytic, (3) Encephalitic and (4) Paralytic.

The paralytic may be of the following types;

(a) Spinal, (b) Bulbar, (c) Bulbo-spinal, (d) Encephalo-spinal and (e) Encephalo-bulbo-spinal.

The term abortive denotes those cases which show slight systemic symptoms, are usually difficult to diagnose and are suspected only during epidemics. This is sometimes called the systemic stage. During this stage the patient usually complains of a headache, sore throat, nausea and vomiting. Accompanying these there may be elevated temperature with listlessness or irritability. Since most of these are the symptoms for many communicable diseases or illnesses in a child they may be ignored or misinterpreted by the patient and the family.

The non-paralytic types includes those cases which are characterized by meningeal signs, for example stiff neck, stiff back, and positive Kernig's without clinical paralysis. Here the patient may be unable to bring his head forward to touch his knees because of muscle spasm in the neck and back. Perspiration and flushing of the face may occur on exertion, and apprehension is evident by the anxious look so often seen. It may happen that before a noticeable muscle paralysis has occurred a significant involvement of bowel and bladder can be discovered on questioning the parents. Bed wetting in children may indicate temporary paralysis of the bladder with retention and overflow of the urine. Paralysis of the bowel may have been interpreted as obstinate constipation by the parent several days before paralysis of the arms and legs has developed.

There are several familiar patterns which the acute illness may take in both paralytic and non-paralytic types. The so-called "dromedary" or "diphasic" form is characterized by a first phase which is indistinguishable from minor illness constituting the whole disease in the abortive form. Several days may elapse between the systemic and meningeal stage of the disease. The disease appears to be quiescent during this time, the child seems well and plays as usual. Following this period there may be recurrence of fever and vomiting and in addi-

tion stiffness of neck and spine. The child resists efforts to bend the head or trunk forward. If he is placed in a sitting position in bed he props himself by holding his arms behind his back in order to prevent movement in the spinal muscles. During this stage reflexes are exaggerated and even gentle pressure on the skin elicits pain. These symptoms indicate that the virus has invaded the central nervous system. In some cases paralysis may be the first symptom noted, the spread of the disease being so rapid that the symptoms and paralysis occur simultaneously.

Another situation and a more common one is that in which the first phase is so mild as to be missed or does not occur at all, and the acute illness develops with the appearance of central nervous system signs, sometimes after a vague non-febrile prodrome of several days duration.

Muscular weakness or paralysis accompanied by muscle spasm and rigidity mark the beginning of the paralytic stage. Two to seven days may elapse from the time the weakness was first observed until the paralysis had reached its limit. The location of paralysis depends on whether injury to the cord has occurred. If the muscles innervated by cranial nerves having origin in the medulla oblongata are paralyzed, the patient has bulbar paralysis and the muscles controlling swallowing and voice may be affected. Tightness of the hamstring muscles and resistance to extension of the legs are very common. Other muscles, including the calf muscles and those of the upper extremity may also exhibit stiffness and tightness. Whenever this stiffness and tightness exists the muscles are apt to be sore and any attempt at motion painful.

Another sign which is perhaps less well known but was described at least 35 years ago is,—"head-drop." It is elicited by having the child lie on its back, placing one hand beneath his shoulders and so lifting him up from the bed. In the normal child the head follows along in a plane with the body as it is raised, but in poliomyelitis, even in its earlier stage, the head falls back limply in a position of hyperextension. Although this sign is not specific it occurs in children severely ill with any prostrating disease including pneumonia and meningitis. In the obvious absence of such disease it is a useful sign which suggests poliomyelitis.

Although there may be stiffness of the back,



neck and hamstrings, the reflexes in the early stages may be normal and active. In the non-paralytic disease it usually remains so. When changes begin to appear, characteristically there is first an irregular shift from normal to hyperactive and then sudden and sometimes transient shift to diminished or absent reflexes. Usually the appearance of reflex changes precedes the advent of weakness or paralysis by 12 to 24 hours. It may therefore herald that event. The superficial reflexes are the first to go, the abdominals, the cremasteric and spinal reflexes. The latter, which are normally present segmentally from the upper back down to and including the gluteal region, although not so widely tested as the abdominals, are of similar significance. Sometimes they disappear before the abdominals. The site of the absent superficial reflex is often of prognostic importance, thus if the right lower abdominal reflex disappears one may expect to find some weakness of the right lower extremity the following day.

**DIFFERENTIAL DIAGNOSIS:** The physician has no specific diagnostic aid to assist in making a diagnosis during the pre-paralytic stage. In non-epidemic seasons even the specialist may have difficulty in making a diagnosis unless the patient has severe involvement. Poliomyelitis has been confused with a great number of other diseases because of the vague symptomatology and a lack of exact laboratory methods of confirming the diagnosis. There are other neurotrophic diseases which so closely resemble poliomyelitis in certain stages that a differential diagnosis is almost impossible. Some of the most common diseases are Western equine encephalomyelitis, St. Louis encephalitis, mumps meningoencephalitis, tuberculous meningitis, and Guillain-Barre' syndrome.

**PHYSICAL EXAMINATION:** The patient in the first phase or the abortive stage presents no abnormalities on physical examination except listlessness and fever and some redness of the pharynx. In the beginning of the second phase the situation is similar. There is fever, a dusky red appearance of the pharynx, little or no edema of the pharyngeal tissues. If and when the disease progresses, stiffness of the neck, back and hamstrings soon become very prominent and these are perhaps the most useful findings in establishing an early diagnosis. The stiffness may be mild, merely a slight resistance to the last degree of flexion of the neck, or it may

rarely be so marked as to present opisthotonos. Stiffness of the spine is best elicited by having the patient sit up in bed with the knees naturally flexed and asking him to "kiss his knee!" If the back is supple this is easily accomplished without discomfort. If the back is stiff however it will be difficult or impossible to perform. Attempts to do so will be accompanied by considerable pain. If the back is flattened or rigid, the patient may not be able to sit naturally at all but will support himself on his two outstretched hands, i.e., in the tripod position, which is also a characteristic sign.

Changes in the deep reflexes have also a prognostic value. A diminished patellar response on one side, or an exaggerated one, may point to possible subsequent development of weakness on that side. As weakness and paralysis increase there is a progressive loss of reflexes, and a patient seen in the stage of severe paralysis of all extremities may have no demonstrable reflexes, superficial or deep.

**SPINAL FLUID:** The most valuable laboratory test in the diagnosis of poliomyelitis is examination of spinal fluid. If the total white cell count is elevated above 8 to 10 cells and the protein above 35 to 45 mgm. per 100 cc. the diagnosis in a suspicious case is more likely. Although spinal fluid abnormalities are usual in poliomyelitis, one cannot rely on a negative test to rule out the diagnosis, because if the patient has the abortive form or is in the first stage of a "dromedary" course, a negative spinal fluid is to be expected. If he has non-paralytic or even paralytic poliomyelitis, his spinal fluid may still be normal, especially if he is seen on the first day of symptoms. Occasionally patients with the non-paralytic or paralytic form of the disease have persistently normal spinal fluid findings.

Although spinal findings are not diagnostic (or prognostic) in poliomyelitis, certain features are characteristic at various stages of the disease. First, the cell count is highest during the first week of the disease in the pre-paralytic or paralytic stages. Second, the predominant cell type is almost always the mononuclear, although often early in the disease the polymorphonuclear form predominates. Three, the protein is low and often normal during the first week but rises the second and third weeks. It remains up through the fourth week, gradually decreasing to normal by the fourth to the tenth

week. Thus the protein is still elevated, and often still rising while the cell count has returned to normal. Recent studies have confirmed and extended these early findings and it is apparent that the cerebral spinal fluid picture in late poliomyelitis resembles that of Guillain-Barre' syndrome and diphtheritic polyneuritis.

**BLOOD** There is no consistent change in the blood picture. As a rule the white cell count is normal or moderately elevated, 10 to 15,000, with a slight shift in the differential count and relative lymphopenia. If the patient is dehydrated there may be a high hematocrit and a more elevated white cell count. Rapid erythrocyte sedimentation rates have recently been reported to occur in about half the patients tested. At present there is no serologic test available which is diagnostic for poliomyelitis.

**URINE:** Routine urinalysis reveals no abnormalities.

**MEDICAL TREATMENT:** At the present time there is no specific treatment available for poliomyelitis. None of the antibiotics or sulfonamide derivatives which have been tried have had any effect in destroying the virus or controlling its spread in the body.

Since there are no specific therapeutic agents available medical management comes down to general supportive measures and the anticipation and handling of complications. The tendency at present is to treat all patients in whom a definite diagnosis has been made in the hospital. This is probably wise since there is such an uncertainty as to the future course in all early cases. In the hospital, management of the patient with poliomyelitis has become a task involving the services of a team of specialists. During the acute illness it has been proved most satisfactory to have its care in the charge of the internist or pediatrician with specialists in orthopedics and physical medicine acting as consultants, directing the special forms of treatment which are their province. Depending on the condition of the patient rather than on any arbitrary time designated as the end of the isolation period, the responsibility is transferred to the orthopedist or the specialist in physical medicine for convalescent and late treatment.

Abortive poliomyelitis is usually treated symptomatically. Bed rest for a few days and certainly a longer period following the mild non-paralytic type is strongly recommended, for

rest may be one factor in preventing the late paralysis which sometime occurs. In the more severely ill non-paralytic patient who has high fever and is dehydrated, parenteral fluids and salt are indicated.

Sedation and relief of pain are pressing problems in the early acute disease. Relief of pain is best accomplished by the intermittent application of hot moist packs. Whenever hot packs or baths are used, salt tablets should be given to prevent chloride depletion which results from excessive salt loss in perspiration.

The response to the common analgesics is not very satisfactory. Aspirin, empirin compound, and chloral hydrate are the three drugs most commonly used. Of late the use of codeine, morphine and demerol has not been desirable because of a resultant danger of aggravating incipient or actual respiratory difficulty.

In recent years several drugs have been advocated for the relaxation of muscle tightness and relief of pain. Kabab and Knapp introduced prostigmine in 1943 and it has received extensive clinical trial with variable results. Ransohoff has recommended curare enthusiastically but not all are agreed as to its benefits and it has been found to be a drug of considerable potential danger.

What has been said of the care indicated in the pre-paralytic phase applies equally to the early paralytic. The problem of the relief of pain may continue for some time. Although the patient is comfortable during the day he may suffer night pains, severe, deep, aching pain in the weakened or paralyzed back or extremities, which persists sometimes for weeks. This pain often defies every form of treatment which may be tried, including continuous hot packs, analgesics and sedatives.

Most common complications encountered are, first, urinary retention, second, atony of the gastrointestinal tract, and third, respiratory failure.

Urinary retention, is common in patients with severe involvement of the lower extremities. Before resorting to catheterization, an adequate trial of drug therapy should be given. In most instances retention lasts only a few days and there is no further difficulty. For this reason an in-dwelling catheter is rarely indicated and never until after several days trial of drugs and repeated catheterizations have failed. The objection to in-dwelling catheters is that it tends to prolong the period of retention and the eventual

risk of infection is therefore increased.

Atony of the gastrointestinal tract is a common occurrence especially in patients with paralysis of the lower extremities. Prostigmine in small doses produces contraction of the bowel and relief of abdominal distention and discomfort. The normal tone of gastrointestinal musculature usually returns spontaneously with a few days.

Respiratory failure is the most serious complication of poliomyelitis. It may be of two types, (1) central, which occurs in bulbar poliomyelitis and results from involvement in the respiratory center; and (2) peripheral, as a result of involvement of the segments controlling the respiratory muscles, the intercostals and diaphragm. Both types may be seen in the same patient at the same time.

The treatment of respiratory failure of the central type is a problem in the management of bulbar poliomyelitis. In following the patient with spinal poliomyelitis who is beginning to have difficulty in breathing it is wise to have a respirator at the bedside and ready for use, for sudden changes in the character of the breathing may necessitate immediate artificial respiration. Not infrequently the first signs of trouble are due not to actual weakness of the respiratory muscles but predominantly to their being "in spasm," i.e. tight and stiff, just as other muscles may be. The first form of treatment to be tried, therefore, is hot moist packs to the chest, applied intermittently every 20 to 30 minute periods. In some instances the respiratory exchange improves and the patient relaxes. In others, in whom progressive muscle weakness is occurring, there may be no improvement but a progression of symptoms and signs: more and more feeble respiratory excursions, increasingly rapid pulse, cyanosis and apprehension. In such a situation respirator treatment will be necessary.

**PROGNOSIS:** As far as the acute stage of poliomyelitis is concerned, the subject of prognosis can be summarized briefly: (1) Early in the course no prediction can be made. (2) As long as fever persists there is a possibility that paralysis may develop or extend; once the temperature has returned to normal development of paralysis is rare. (3) The mortality rate varies considerably in different epidemics but is usually 5 to 8 percent. It is greatest in the bulbar form of the disease and in those with

peripheral respiratory failure. It varies also with increasing age of the patient, being considerably higher in adults than in children.

#### BULBAR POLIOMYELITIS

Some of the more common symptoms found in cranial nerve involvement are outlined as follows; Involvement of:

- (1) Cranial nerves IX, X, and XI (Cranial divisions) (nasal speech, regurgitation of food via nose, dysphagia, secretions, hoarseness, aphonia, stridor)
- (2) Cranial nerve X (Singly) (hoarseness, aphonia, stridor)
- (3) Cranial nerve VII (facial palsy)
- (4) Extra ocular nerves (III, IV, VI) diplopia, blurring, disturbance in accommodation)
- (5) Cranial nerve XII (difficulty in mastication and speech)
- (6) Cranial nerve V (3rd division) (difficulty in mastication)

The treatment of bulbar poliomyelitis, as we all know, can be very complicated and at times most discouraging. We can not emphasize too strongly the timely and proper use of the mechanical aids on hand, i.e., tracheotomy, the respirator (with positive pressure attachment when needed, the Bennett positive pressure machine, the Kam attachment (inspiration and expiration regulator), the ventilation meter, and the rocking bed.

The following tables show an analysis of the cases of poliomyelitis treated at St. Monica's Hospital, Phoenix Arizona for a two year period.

**POLIOMYELITIS—ST. MONICAS HOSPITAL**  
Phoenix, Arizona

January 1949 to December 1950

Total number of cases—237

#### TYPES

Non-paralytic	190—80.2%
Paralytic	47—19.8%
Age Groups	Cases #237
Ages	
0 to 4	24.3%
5 to 9	27.2%
10 to 14	12.6%
15 to 24	18.1%
25 to 34	11.8%
34 to 50	4.6%

#### CARDINAL PHYSICAL SIGNS

(1) Stiffness of neck	74%
(2) Stiffness of Back	59%
(3) Weakness or Paralysis	54%

## (4) Hamstring Tightness 38%

## COMMON SYMPTOMATOLOGY

1. Fever	78.0%
2. Headache	58.2%
3. Pain in neck	56.1%
4. Pain in back	41.0%
5. Vomiting	38.4%
6. Pain in legs	33.2%
7. Nausea	21.9%
8. Muscular aches & pains	21.5%
9. Anorexia	20.6%
10. Sore Throat	19.8%
11. Irritability	18.1%
12. Fatigue	16.0%
13. Malaise	13.0%
14. Abdominal pain	11.8%
15. Hyperesthesia	10.9%
16. Coryza	10.5%
17. Chills	8.8%
18. Peresthesia	8.0%
19. Drowsiness	7.6%
20. Cough	5.8%
21. Urinary retention	5.0%
22. Tremors	3.8%
23. Muscular twitching	3.8%
24. Constipation	3.3%
25. Diarrhea	2.5%
16. Convulsions	2.5%
17. Mental Confusion	2.5%

## SUMMARY

The principal subjective and objective symptoms of poliomyelitis have been presented. In presenting these symptoms, an effort has been

made to discuss them in relation to the type of poliomyelitis they are most frequently encountered. The differential diagnosis of this entity has also been briefly reviewed, enumerating some of the many diseases which closely resemble it.

The accepted treatment of poliomyelitis has also been presented—although it is still wanting in many aspects.

The charts shown reveal a breakdown of 237 cases treated at Memorial Hospital, Phoenix, Arizona, from January 1949 to December 1950. These charts respectively show (1) Types of poliomyelitis; (2) Age grouping (3) Common symptomatology; and (4) Cardinal physical signs.

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## PAS SENSITIVITY AND DESENSITIZATION

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This report is a brief summary of the clinical findings and treatment of a specific reaction to the PAS compounds. The topic has occasionally been mentioned during the past two years, but a sizable series of results has not been presented.

The term 'PAS' includes several related compounds which have been manufactured in several different trade forms. There has been a trend away from the original para-amino-salicylic acid, to a sodium salt, and recently a calcium salt has been manufactured.

The need for PAS in the treatment of tuberculosis is more because of its prevention of bacterial resistance to streptomycin than its own therapeutic effect. It has recently been stressed that the drug is not only needed, but must be given regularly and daily.

There are at least eight discomforts or hazards from the use of PAS. Some forms have an unpleasant *taste*. They produce an *intolerance* to some degree in from 10 to 50 per cent of the users, chiefly due to gastrointestinal irritation but sometimes due to CNS toxicity. A rare and transient *vertigo* may be noted, and a mild fixed follicular drug *rash* may occur without harm. *Renal irritation* and *hypoprothrombinemia* are rare complications, and the effects can be avoided by observation. *Resistance* to PAS may occur after many months of use, but sensitivity may reappear. The most dramatic and serious complication is a *specific reactivity* to PAS, a drug sensitivity or allergy.

Manufacturers have attempted to disguise the taste and to decrease the gastric irritation with considerable success, but systemic effects are common to all. They occur in certain patients and with sufficient dosage. Fortunately the large doses once used in England are no longer deemed necessary.

The specific sensitivity can be defined as a systemic reaction which occurs in certain patients after they have taken full-sized doses of PAS for one to four weeks, which will cease abruptly when the drug is withdrawn, which will recur when the drug is again taken, and which may become increasingly violent even with small subsequent doses of the drug. The reaction follows use of any PAS compound, and

Kierland and Carr of Mayo's demonstrated by oral use and patch tests that the salicylic acid component is the common cause.

The symptoms may include fever, malaise, headache, chilliness, chills, warmth, sweating, and rarely spasms of cough, dyspnea, conjunctivitis, jaundice, and angioneurotic edema. The signs may include a flush, a measles skin-rash, (with pruritis), and even asthma. It is usual for a few of these symptoms to occur and recur in a single individual.

The drug allergy was apparently not noted in Europe in the three years before PAS was first used in the United States. Horne of Edinburgh, however, described a case in June 1949 of "true drug sensitivity" which occurred on the twelfth day, consisted of high fever, cough, malaise, flush, rash, and rigor. Kierland and Carr of the Mayo Clinic noted the occurrence of drug sensitivity in 4 cases in October 1949, and had not heard of any previous reports; two of their patients had fever, rash, and pruritis, and two had skin lesions without fever; the drug had to be discontinued in all cases. Davin and Rogers of Los Angeles reported 4 cases with febrile reactions to PAS, occurring 3 to 4 weeks after therapy was begun, and accompanied by prostration, nausea, and vomiting; the drug was discontinued. Dr. Gwyn Roberts of San Francisco has been reported by PAS manufacturers to have a considerable series of cases. Oatway and Reding reported six cases in early 1951. Mention has also been made of such reactions in the V.A. Chemotherapy Conferences of 1951. It has been estimated that about 2.5 per cent of the cases treated with PAS develop an allergic reaction.

Treatment of the allergy has generally consisted of withdrawing the drug, usually after mistaking the condition for an intolerance or infection. It may also be confused with a specific reaction to streptomycin. Antihistamine drugs were given by Horne without success, as well as to three of our cases. Dr. Emil Bogen reports that some of the Olive View cases were controlled by dramamine, so that this approach may bear more study. A future management may consist of replacing SM and PAS with one of the new drugs.

The logical effective method of therapy for the sensitivity is to desensitize the patient to PAS. Horne told of his success in one case by using 0.1 gram 5 times a day, and increasing the unit dose to 0.1 gram every 5 days. The Lancet published a similar method, and the Barnes-Hind Company described Dr. Roberts' method,—0.1 gram 2 or 3 times per day, with an increase of 0.1 gram every 3 days. Dr. Roberts, who has done considerable amount of work with PAS injections, reports that tolerance to injection does not bring tolerance to ingestion of PAS.

Dr. Bogen has told, in correspondence, of desensitizing several cases successfully. Dr. John Steele of Milwaukee tells of several who could, and two who couldn't, be desensitized. Dr. Arthur Walker of the V. A. believes that practically all can be desensitized. Drs. Waring and Howlett of Connecticut reported a series of "allergies", including one case of Loeffler's syndrome, at a meeting of the Eastern Trudeau Section last fall, and again in St. Louis A.V. meeting in January 1952. They also desensitized with fairly good effect. Their paper has just been published in the March 1952 American Review of Tuberculosis.

The present series consists of twelve cases of PAS allergy. Three cases were seen (with Reding) at Barlow Sanatorium in the summer and fall of 1949; the relationship of signs and symptoms was worked out by trial and error; the only treatment consisted of a discontinuance of the drug. Nine of the cases have been diagnosed at La Vina Sanatorium since April 1950.

The diagnosis was sometimes difficult, but the sudden occurrence of a fever in the first few weeks of therapy should at once make one suspicious. (We have not seen an allergy due to streptomycin during these three years).

The sex incidence of this allergy is startling,—all twelve of our patients were women. (The ratio of women to men in both sanatoria has been about 2 to 1). Another interesting observation is that no patient was acutely ill, and none had far advanced disease. Only one had an immediate need of the drug.

The time of occurrence during therapy was sometimes earlier than we had been led to expect. The first reaction was noted on the following days,—20, 14, 20; 10, 10, 19, 32, 22, 15, 8, 9, and 20.

In each of the last eight cases we have used a regular method of 'challenge doses' to confirm the diagnosis. All drugs are discontinued for 2 days; one teaspoonful of PAS or PASNA is then given with breakfast on the next morning; if there is no reaction, a teaspoon is given with each meal the following day; if any reaction to those doses occur, the amount is decreased to 1 gram the next morning.

Eleven of the twelve patients reacted to a single teaspoonful. Nine of these also reacted to one gram, tho all but two had less severe reactions. One of these developed a violent reaction within ten minutes of the 1 gram dose, given during a meal.

The signs which occurred in twelve cases were a generalized measles rash in 2, a flush in 7, and a fever in all 12 cases. The symptoms included asthma in 1, pruritis in 2, paraesthesias in 2, a feeling of coldness in 4 (with chills in 3), a feeling of warmth in 7, nausea and vomiting in 6, headache in 8, and malaise in all 12 cases.

The general routine of desensitization was that described by Dr. Roberts. PASNA granules were used, since they are easier to handle and weigh. In all except two of the cases we started with 0.5 gram, three time a day, and increased the unit dose 0.1 gram every 3 days. Streptomycin was not given until 8 grams of PASNA per day were tolerated. Weighed increases continued until 4 grams T.I.D. was reached.

We have had two types of difficulty. In the first two cases our stumbles due to eagerness, with too rapid an advance of dosage, led to setbacks to smaller amounts. Only one case failed to tolerate the final weighed 12 gram total; this patient repeatedly developed a fever of 99.4 to 99.6° when a dose of 3.6 grams was seached; chemotherapy was completed before the attempts could be successful to reach the full clinical dose.

Nine cases have been started on desensitization. One is the case described, a partial success; one is too recent to be of importance; one proceeded well to a unit dose of 1.2 grams, when a mental illness recurred and she was transferred to the State Hospital; and six cases were completely desensitized to therapeutic doses.

The time of delay before one can safely use streptomycin is a disadvantage of the routine we used. It requires 8 weeks for the average

case to get to a dose which will allow use of SM, tho SM could be given earlier in an emergency. Attempts to hurry the procedure, such as the increase of 0.2 gm. per day used by Warring and Howlett, resulted in reactions in their

cases, and their best success was when they used a period of 54 days to reach 10 grams per day.

It would seem that the allergic syndrome can be recognized, and that desensitization can usually be accomplished.

## NON-SURGICAL REPAIR OF CYSTOCELE AND RECTOCELE

### An Original Technique

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Cystocele and rectocele are among the most common pathological conditions resulting from childbirth. Every prospective young mother feels apprehensive over lacerations, realizing that they may blight the joys of motherhood and deprive her of the vigorous health she should possess in the best years of her life; with the approach of middle age she experiences ever-increasing discomforts, which may eventually become extremely troublesome.

It is, of course, the aim of every obstetrician to avoid perineal lacerations, and to repair them promptly if they occur. But there will always be parturient women who are not so fortunate as to receive skilled attention. Under socialized medicine this holds particularly true.

Hernias of the vagina contain organs which are the reservoirs of the body's waste material. Gradually and slowly over the years these organs lose the support of their retaining walls; they sag and bulge from the weight of their contents; they protrude into the vaginal canal which has been loosened from its moorings; the resultant distress is both physiological and anatomical in character and the condition often leads to pathology of major importance.

If the damage can be repaired while the muscles are still in good tone, so that a firm support can be constructed, excellent results can be anticipated from operative procedures.

In vaginal hernias of long-standing, however, the muscles and ligaments have become so attenuated—such thin and narrow ribbons—that in many instances it is impossible to build a satisfactory barrier to the hollow organs which during every twenty-four hours hold material that is constantly exerting such downward pressure that the bladder and rectum eventually become sacculated. These thinned-out, over-stretched, inelastic walls, exposed to the outer

air and trauma, become fibrous, dry and excoriated.

For many reasons scores of women cannot or will not submit to surgical treatment at the time when a perfect result would be practically certain. With advancing years the sequelae of this neglect become more and more distressing, functionally and organically. Mechanical supports are at best a makeshift, and, in time, are usually discarded.

Women will endure uncomplainingly for years until acute or chronic cystitis, incontinence, dyschesia, bleeding or pain from injury to the hard, protruding mass compels them to seek medical assistance.

Having observed the satisfactory results from the treatment of internal hemorrhoids with a sclerosing agent, by which the dilated veins are compressed and the normal rectal contour restored, I decided some twelve years ago to employ the same principle in the correction of cystocele and rectocele.

Two c.c. of a five per cent solution of Quinine and Urea Hydrochloride with two per cent procaine are injected into the submucous layer of the vaginal wall. The usual method is to inject one c.c. into the right side and one c.c. into the left side of the anterior wall; the second treatment can be into each lateral wall; the third into the posterior wall; then proceed at different levels. If the patient does not experience more than a momentary dizziness the dose can be, and usually is, increased to two c.c. for each injection at the next visit—a total of four c.c. per treatment. These are given twice weekly. An average case requires approximately fifty c.c.

Topical anesthesia, such as two per cent pontocaine, is swabbed over the site of injection. A three-inch No. 22 gauge Goldbacher needle is very satisfactory. If the tissue turns white at the point of insertion the needle must be im-

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mediately withdrawn to avoid sloughing. This is particularly likely to happen on the anterior wall, which frequently is leather-like and cracked. Poorly nourished as this tissue is, it is amazing how quickly a slough will heal after the introduction of a tampon covered with a soothing ointment. The patient often is unaware of it, and, fortunately, under any circumstances, it is merely a minor discomfort. Sloughs will occur in spite of the utmost care.

The needle should remain in situ for about a minute. Tough, fibrous connective tissue, lacking contractility, will not close over the needle puncture. Bleeding which may follow can sometimes prove troublesome. If it does, the area is swabbed with a modified Monsel's Solution,\* which is styptic but not caustic.

It is advisable to allow the patient to remain on the table for a few moments to overcome any slight dizziness. Two patients felt ringing in their ears, one tasted quinine while the injection was in progress.

A tampon lubricated with a soothing, astringent ointment\*\* is packed high in the vaginal vault and one or two smaller ones into the lateral fornices. Replacement of the prolapsed organs gives a gratifying sense of relief. Edema of the long-displaced tissues disappears with the return of normal circulation, and involution follows in orderly fashion. The tampons are retained for two or three days if possible, and after removal are followed by a soothing douche. It is the natural tendency of these herniated organs to push the tampons out within a few hours after the first few treatments.

Time, of course, must be allowed for the full effect of the shrinkage, although distinct improvement not infrequently appears after three or four treatments. There are many women in the fourth and fifth decades of life who are decidedly uncomfortable because of relaxed vaginal walls only, and who can be greatly relieved by a few injections into the billowing tissue.

Occasionally a patient returns after months or years for a few additional treatments.

#### REPORT OF CASES

Case No. 1. C. W., aged fifty-eight, in whom frequency of urination was most annoying

during the past six years. All medication proved futile. A huge cystocele completely filled the entire introitus, which slowly receded under injections of Quine and Urea Hydrochloride.

Case No. 2. P. A., aged sixty-four, was thoroughly wretched because of frequency, urinary stress incontinence, persistent backaches and a sense of weight dragging her down. Had a third degree laceration in childbirth forty years previously, when sixty-five stitches pulled loose and were never replaced, except that fourteen months later the torn rectum was repaired with skin-grafting.

She presented a well-advanced procidentia and urethrocele, requiring many injections, interrupted by long periods of absence, and made more difficult by the fact that she owned a cafeteria, where she was on her feet all day lifting heavy kettles. Finally the vaginal canal narrowed to such a diameter that she could retain a Gellhorn pessary. Quinine and Urea Hydrochloride injected around the pouting, everted urethra brought partial but noticeable relief from the urinary stress incontinence—days of freedom were followed by recurrences, especially when the weather turned cold or it rained.

She was unable to continue treatments to a more satisfactory level when she removed to another state several years ago, but two years ago reported that she was comfortable and contented.

Three weeks ago she visited Tucson. A small cystocele is now insinuating itself under the anterior vaginal wall; urinary stress incontinence is still partially relieved. The rectocele is practically eliminated; the uterus is a small knob high in the vaginal vault; the entire vaginal canal is in good tone, and so contracted she can now retain a small ball pessary which a few years ago was promptly expelled.

Now in her seventy-fifth year, her personal appearance has undergone a striking change from a woman who dragged herself along with effort, wearing an expression of utmost misery on her face, to a happy, smiling person possessing an agility that people half her age envy.

Case No. 3. A. S., aged forty-one, a primipara at 37, sought relief from a sensation of something trying to escape from her pelvis. This proved to be an enterocele, or, as Charles D. Reed of London prefers to call it, a hernia of the pouch of Douglas. After four treatments high in the posterior vaginal wall she exclaimed that

\*Monsel's Solution Modified:  
Liq. Ferri Subsulphate 30 c.c., S.T.37 30 c.c., 2% Tr.  
Iodine 2 c.c.

\*\*Lubricant:

Benzolin Ointment (Breon) Benzocain 2% in Basal  
Hydrogenated Oils, Lanolin and Petrolatum.  
Thymol-Alum Comp. (McNeil) equal parts.



she had such a delightful sense of well-being.

Case No. 4. F. D., fifty-two years old, wished a complete physical examination; no complaints. A rectocele hung like a purse-string pouch over the vaginal outlet. She admitted defecation was only accomplished when she replaced this protrusion into the vagina. Seven treatment enabled her to have normal bowel action. A couple of check-ups in the past ten years find the condition still satisfactory.

Case No. 5. J. M., aged sixty-one, complained of a very heavy dragging sensation, frequency, and inability to walk. Locomotion was accomplished by shuffling her feet along the floor. The entire uterus protruded from the vulva, the cervix was cracked, swollen and bleeding, (Schiller test negative). After the fourth treatment the uterus remained within the

pelvis; six more found it high in the vault. Then she walked with an energetic stride.

#### COMMENT

Quinine and Urea Hydrochloride has a slow anesthetic effect of prolonged duration; the two per cent procaine in the ampule effects more immediate pain reduction. It infiltrates the loose areolar tissue, producing a slight inflammatory reaction with later proliferation of fibrous tissue. The subsequent retraction of this scar tissue brings about the tightening of the vaginal walls, and these slowly regain their normal texture.

#### CONCLUSION

A sclerosing agent injected into the sub-mucous layer of the vagina will produce contraction of the relaxed walls and thereby support the prolapsed organs involved in cystocele and rectocele.

1911 Hawthorne Street

## BASIC *Science* SEMINAR

### BLOOD VOLUME

#### Normally And In Disease, And Methods of Determining It

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#### INTRODUCTION

Knowledge concerning the total volume of blood which fills the cardiovascular system under various conditions of health and disease may aid the practicing physician as much as his understanding of variations in the blood pressure or the blood count. The necessity for considering the blood volume in relation to circulatory dynamics, fluid balance, and the composition of the blood, so clearly shown by Starling, has become axiomatic among physiologists but is often neglected or underemphasized in the bedside teaching of clinical medicine. This serious defect in the application of physiologic principles to medicine may be attributed primarily to the inadequency of the methods which are available for clinical measurement of the blood volume.

We must necessarily confine the present discussion to a consideration of the blood volume, its normal quantity, the factors involved in its alterations, and the various methods of determining it as an aid in diagnosis.

#### FUNCTIONS OF THE BLOOD

It would be necessary to recall that the functions of the blood may be grouped generally

under two categories; namely, active and passive. The former is concerned with the defense of the body against various toxic agents by leucocytosis and antibodies; while the passive function deals with the transportation of various substances associated with the body's metabolism via the tissue fluids, such essential substances as  $O_2$ ,  $H_2O$ , and nutrients; the removal of waste products as  $CO_2$  and urea, while also and distributing hormones, and maintaining the optimal environment of the cells by the regulation, besides maintaining the osmotic pressure, temperature, and gas tensions of tissue fluids.

#### TOTAL QUANTITY OF THE BLOOD

The average person has almost 6 liters of blood—3.3 liters per square meter surface area of the body, or 72cc per kilogram of body weight. Maintenance of this constant volume is of most immediate importance for the regulation of the blood pressure and blood flow. Death ischemia results from a loss of blood of about 40 per cent. The term relative blood volume refers to the relation between actual blood volume and the capacity of the circulatory system, for a normal actual volume becomes

inadequate when vascular capacity is increased as in vasodilation.

Clinical studies conducted on blood volume further increase our knowledge of this subject. This study comprises an analysis of the plasma and total blood volumes, venous pressures, and blood velocity rates determined in 90 adult individuals, 49 of whom were males and 41 females. These subjects were members of the hospital staff in good health and hospital patients with no evidence or history, or on physical examination, or cardiovascular or renal disease, blood dyscrasias or debilitating disorders.

Plasma and total blood volumes, venous pressures, and blood velocity rates were determined with the subjects in a basal state.

There was a striking difference in volume of males and females, the average absolute and per Kg. plasma volume of females being 22.5 per cent and 3.7 per cent less, and absolute and per Kg. total blood volume 28.8 per cent and 4.7 per cent less than that of males, respectively.

An extreme range of about 30 per cent above and below average plasma and total blood volume is encountered in individuals, but no particular difference in range obtains between sexes. In about two-thirds of the cases in this series, plasma and total blood volumes were within 10 per cent above or below average values, and of the remaining one-third, an approximately equal number were above and below that limit.

Analysis of absolute and relative volumes by decades shows a tendency in both sexes for values to remain at or rise somewhat above the average levels of the series during middle life and to decline with advancing age. The increase in total volume in terms of body weight during middle age is more pronounced in males than in females, while the decrease after the fourth decade, apparent in both sexes, is greater in females than in males, being about 16 per cent below middle age values in women and 8 per cent in men.

There is an increase in total blood volume with increasing individual height, weight, and surface area as calculated from the monogram of Boothby and Sandiford given by Dubois. In relation to all three of these physical measurements, in about 70 per cent of the cases total volume was within 10 per cent above or below the average volume for the group in both sexes.

As regards weight only, those cases having volumes above these limits were predominantly muscular individuals, and those falling below were for the most part tall and thin.

The relation of total volume in cc per Kg. to variations in body weight was observed in the patients. In both sexes, unit volume tends to rise with increase in weight of individuals, reaches a maximum at a lower weight level in females than in males, and thereafter declines with further increase in weight, the decrease being more pronounced in women than in men. In relation to variations in height, unit volume rises with increasing individual height, reaches a maximum value and remains quite constant with increases in height thereafter in both sexes. The composite relation of total volume to variations in both height and weight; namely, surface area, clearly indicates the chief differences between the sexes in the relationship of volume to physical measurements; total blood volume in terms of surface area is about the same in small men as women, but is considerably greater in large men than in large women. In addition, with increasing individual size, unit volume in males increases steadily at a gradually lessening rate, while in females it rises to a maximum value and declines rather sharply thereafter.

There were no significant variations in either venous pressure or blood velocity rate with age in either sex. The degree of variation in individuals above and below average values for the whole group is less in the case of the blood velocity rate than in venous pressure in both sexes, but in both instances the extremes encountered in males and females are about the same. The average value of both determinations is appreciably lower in females than in males. The relation of total blood volume to variations in venous pressure and blood velocity rate was observed in the total group of 90. It is apparent that no interrelation between variations in these two measurements and blood volume exists in normal persons.

In the method employed the red cell volume is based upon the hematocrit values of venous blood samples, being considered as the difference between total blood and plasma volumes. In this series the male hematocrit values ranged from 36.0 to 51.8 with an average value of 44.6; the female hematocrit from 33.7 to 43.8 with an average value of 39.9. Thus the average

hematocrit value for females is 10.5 per cent less than that of males.

The computed average red cell volume of males is 2,387 cc. and that of females 1,514cc., or 36.5 per cent less than that of males.

#### REGULATION OF BLOOD VOLUME

Actual blood volume is maintained by a balance between ingestion of water and loss of tissue fluids through capillaries and of water from lungs, skin, kidney, and colon. The volume is regulated indirectly, inasmuch as variations in volume offset blood pressure and thereby offset tissue fluids and urine formation. Of these mechanisms, the formation of tissue fluids is the most important immediate regulatory means. An increase in blood volume as by ingestion of saliva or transfusion, raises capillary pressure and increases the rate of formation of tissue fluids, thus diminishing blood volume and pressure through the production of edema.

A fall in blood volume as by hemorrhage, emesis, diarrhea, or by inadequate ingestion of water, lowers the capillary pressure by compensatory arteriolar constriction, causing diminished formation and greater reabsorption of tissue fluids, diluting blood cells and proteins. Loss of 1 liter of blood requires about 32 hours for restoration of blood volume.

Splenic contraction may be an immediate mechanism to increase circulatory blood volume. The kidney then assists by diminishing its secretion of water, perhaps because of renal vasoconstriction; by diminishing glomerular filtration and increasing tubular reabsorption. Thirst is also produced, leading to ingestion of water.

The same compensatory phenomena occur when the relative blood volume is altered, as when maintained cutaneous vaso dilation due to heat makes the normal volume inadequate by about 0.5 liter and a compensatory increase occurs.

In such a case, the vessels involved in the dilatation are arterioles, capillaries, and veins. The great reduction in peripheral resistance which allows rapid rates of flow proves that arterioles are concerned, while the changes in the large veins may be directly observed; changes in the capillaries and venules may be secondary to those in arterioles. But evidence of direct effects is advanced by one investigator. The dilatation is accompanied by a very rapid

flow. The greater part of this increased flow depends on an increased cutaneous circulation, though in such changes the deeper flow to the muscles may also be somewhat increased. The greater rate of flow increases thermal conductivity, allowing rapid transfer of heat inward if the cutaneous temperature is above that of the rectum or of heat outward if the thermal gradient is of normal direction. In either case the increased rate of blood flow makes the surface and deep temperatures approach each other, and it is this fact which makes cutaneous temperature measurements useful in determining the cutaneous circulation.

The vasodilatation in the skin is accompanied by a considerable rise in capillary pressure, and this increase in capillary pressure affects fluid transudation, so that edema may accumulate under appropriate conditions at a more rapid rate at the higher temperatures. In the skin such fluid transudates must increase the moistness of the epidermis and so increase fluid loss by evaporation. It has been demonstrated that such adjustments of the degree of moistness of the skin do occur and parallel the changes in circulation through the skin both above and below the true sweating level.

#### ALTERATIONS IN BLOOD VOLUME

The volume is increased as a compensatory means is acclimatization to heat (40%) and in hyperthyroidism (6%); and following the production of a large arterio venous fistula or its placental equivalent in pregnancy, where volume increases until delivery (65%). It is increased, probably passively, in congestive heart failure, although this will increase venous return and may aid in maintaining cardiac output. An increase beyond the compensatory value of both cells and plasma (35%) as in cardiac failure produces deleterious effects by causing edema and pulmonary engorgement necessitating reduction by venesection. In anemia where the cell volume is diminished, the plasma volume is increased to bring the total volume to normal. In polycythemia plasma volume is probably decreased in proportion.

The volume is decreased by hemorrhage, shock (due to loss of plasma through dilated capillaries as in the intestines), acclimatization to cold (30%), hypothyroidism (15%), on assuming the erect posture (loss in leg tissues), dehydration, and supposedly in hypoproteinemia, because of increased formation of tissue fluids.

A decrease in volume to the point of producing an inadequate blood flow to tissues is relieved best by injection of plasma or whole blood, or albumen solution, rather than by crystalloid solutions which pass rapidly through the capillary wall due to lack of protein osmotic pressure to resist their passage. In cardiac failure, further increase in blood volume and protein dilution by injection of saline is especially liable to produce pulmonary edema. Concentrated plasma (2 to 3 times) or hypertonic crystalloid solutions (10% dextrose in saline) may be employed to increase volume. These aid by withdrawal of tissue fluids into the circulation, if these tissue fluids have not already been depleted. Hypertonic NaCl (5%) is sometimes used in treating thromboangiitis obliterans, on the basis that it may promote circulation by increasing blood volume and diminishing viscosity.

#### METHODS OF TESTS FOR DETERMINING BLOOD VOLUME

Consideration of the blood volume, even in a semiquantitative sense, lends increased significance to many of the more familiar laboratory and clinical findings in two general ways:

1. Calculation of total quantities of substances contained in the blood. The quantity of any substance contained in the blood (formed elements, protein, gases, electrolytes, etc.) can be calculated from the product of volume and its concentration, whereas data concerning concentration alone are often misleading. For instance, samples of blood from a patient with polycythemia and from a patient in shock resulting from burns might show identical hematocrit readings of 65 per cent. Knowledge that in the first clinical state the total blood volume is usually very large, and that in shock it is reduced, permits the conclusion that the total volume of circulating cells is greatly increased in the first patient and approximately normal in the second. Calculations of this type can be used in guiding therapy with blood substitutes in such states as shock and chronic protein depletion.

2. Interpretation of hemodynamic disturbances. Determinations of intravascular pressure (arterial or venous) render an incomplete picture of the status of the circulation during hemodynamic disturbances such as shock, cardiac failure or tamponade. Knowledge concerning the approximate volume of the blood and

its probable distribution within the various portions of the cardiovascular system gives insight into the nature and severity of those processes which involve changing relations between vascular capacity, volume, and the rate of blood flow. For instance, arterial pressure, and even the blood count, may be within normal limits immediately after a hemorrhage involving as much as 20 per cent of the blood volume. The physician relying only on these signs may be unduly optimistic because, soon after the hemorrhage, slight tachycardia and cutaneous pallor may be the only signs to indicate the increased sympathetic activity which prevents a fall of blood pressure. At first the blood picture is not disturbed because hemodilution occurs relatively slowly as fluid is borrowed from the extravascular space to replenish the blood volume. Awareness of the extent to which the blood volume has been depleted permits the physician to decide the urgency and the extent of treatment which may be necessary.

As the result of a large amount of experimental work, several technics have been developed which employ the principle of dilution to estimate either (1) the total space occupied by erythrocytes or (2) plasma volume. Total blood volume is calculated from the cell volume and hematocrit or from the plasma volume and 'plasmacrit'. (Greater precision can be obtained by measuring cell and plasma volumes simultaneously and adding these two values.)

Unfortunately, these methods require not only special equipment and meticulous technic but also cautious interpretation of data, and therefore are not suitable for routine use in the average laboratory. When employed in the research laboratory, however, they are said to permit clinical estimation of the blood volume with an error of about 5 per cent. This compares favorably with several other determinations which are complicated by similar difficulties (cardiac output, basal metabolic rate, cardiac area or volume). Although it would be interesting to be interesting to be able to observe variations of the same, or even smaller, magnitude than the experimental error, many of the variations of the blood volume occurring in disease, or even under certain physiologic conditions, are so large that this error becomes unimportant. Furthermore, even though single determinations may show only slight deviations from 'normal', a series of measurements made on the same



subject over a period of time may show consistently progressive changes which are highly significant.

The average physician, although unable to make his own observations of the blood volume in individual patients, may be guided by the results of a large number of physiologic and clinical studies which have been made at laboratories where interest has been centered on this problem.

Obvious difficulties arise in the determination of total blood volume. Welcher in 1854 bled animals to death, washed their blood vessels and extracted the Hb. still remaining in their tissues. As a result of his experiments he concluded that the total blood mass of mammals constitutes 7.7 per cent of the body weight. This value was later confirmed for human beings by Bischoff who bled two criminals.

More practical methods of blood volume determinations are based on the principle that by the addition of a definite quantity of a known substance to the circulation, the total quantity of blood may be calculated from the concentration of the foreign substance in a sample of blood. Normal salt solution (Oohnstein Zuntz), tetanus antitoxin (Von Behring), Acacia (Meek & Gasser), carbon monoxide (Haldane & Smith) and various nontoxic dyes have been used for this purpose. By the carbon monoxide methods, the saturation of the red cells of an individual to whom a certain amount of carbon monoxide has been administered is determined, and the total quantity of blood is estimated from the relative quantities of erythrocytes and plasma as determined by means of a hematocrit. In the dye method, the plasma volume is first determined from the dilution of a given quantity of dye injected into the blood, and the total quantity of blood is then estimated from hematocrit values. The introduction of nontoxic, slowly-diffusing blue dye, T-1823, and various technical improvements, such as those introduced by Price and Longmire, have made the procedure more accurate. Another useful method involves the introduction of erythrocytes "tagged" with radioactive iron and the measurement of their dilution among the subject's red cells with the aid of appropriate equipment.

Methods of blood volume estimation have been criticized by most investigators who have attempted to use them. As Lamson and Nagayama point out, the blood is not a homogeneous

fluid, but a suspension of corpuscles of varying size in a fluid which is undergoing variation in volume; the concentration of corpuscles is not constant throughout the circulation. Methods dependent upon the injection and dilution of a known amount of substances into the blood stream measure only the volume through which the blood carrying the ingested substance circulates. By such methods, it is not possible to differentiate between changes in circulating blood volumes due to fluid loss or to vasomotor or circulatory changes. Absorption of the foreign substance into the tissues and its rapid excretion or destruction are other sources of errors. Specific objection to the carbon monoxide method include the time lag in the saturation of the Hb.—the splenic spaces, the dependence on environmental temperatures, and the possible absorption of carbon monoxide by muscle Hb.

It has been found that the usual hematocrit procedure fails to eliminate plasma completely from between red cells, the true volume of packed red cells per 1 cc. ml. being 7 to 8.5 per cent lower than is assumed. Furthermore studies with radio activity, tagged red corpuscles indicate that average for the whole body is lower than the volume of packed red cells in the jugular vein, and still lower values are found in the capillaries, arterioles, and venules.

#### BLOOD VOLUME IN HEALTH

The total blood volumes varies with the height, weight, and surface area of the body. Using the dye, T-1824, or Evan's blue, Gibson and Evans found an average of 43 cc. plasma volume per kilogram body weight in adult males and 42 cc. in females. The total blood volumes were 78 and 66 cc. per kilogram respectively, and 2,923 and 2,523 cc. per square meter body surface respectively. Although wider inter-individual differences were found in majority of adults, plasma volume within 10 per cent of the above average values were observed. According to this data, the total blood volume represents 7 to 8.2 per cent of the body weight. By the carbon monoxide method somewhat lower values have been recorded (4.8-8.4 per cent).

In infants the blood volume in relation to body weight is relatively much higher than in adults. High values (100-195 cc. for each kilogram of body weight) are found particularly in the first few weeks of life. Increased quantities of red cells are said to make up the greater

proportion of these high values. On the other hand, in relation to surface area, infants have relatively less blood (1,700 cc. for each square meter) than adults. Rapid alterations in blood volume occur in the first few weeks of life, following which more gradual changes take place until values found in adult life are reached.

The total blood volume tends to remain fairly constant despite numerous disturbing influences. The ingestion of large amount of water and even blood transfusions are associated with only vary temporary increases in the total blood volume. The fluid portions of the blood are rapidly removed from the blood vessels by the kidneys and tissues, and even the increases—the cellular elements following transfusions—are maintained only for a few days. Likewise, reduction in total blood volume as by hemorrhage or excessive vomiting and diarrhea is made up as much as possible by the passage of liquids from the tissues to the blood vessels. The work of Bancroft and his co-workers in England, of Binet and his school in France, and of Izquierdo and Cannon, and Harzis and Mann in this country, indicates that the spleen plays an important part or role in buffering mechanically the vascular system against alterations in blood volume.

#### BLOOD VOLUME IN DISEASE

Details concerning blood volume in disease will be found in the discussion of individual disease. It will suffice here to say that in polycythemia vera and in leukemias increases in the total blood volume have been found, whereas in anemias and sometimes absolute increase in plasma volume has been noted. In certain diseases associated with splenomegaly, notably cirrhosis of the liver, hemolytic jaundice, and Bant's disease, the total blood volume appears to be in excess of normal.

In peripheral circulatory failure of shock, the circulating blood volume is decreased, and in cardiac failure, it is increased.

Not until 1924 and 1925 when the studies of Bancroft were published did the problem of blood volume changes enter into circulatory system pathology. Bancroft found that the spleen is a blood depot which is capable of storing "depot blood" and of releasing it into the circulation. Eppinger and Schurmeyer studied the changes in the circulating blood volume in collapse and related conditions. This was the beginning of an extensive literature on the changes

in blood volume as co-efficient of circulatory insufficiency.

Wollheim found increased blood volume in patients with disturbances of circulation, who had the following clinical signs: decrease in the dyspnea on sitting with legs hanging down, insomnia, acrocyanosis, marked filling of the neck veins, especially on liver pressure, increased venous pressure, decompensated after work or rhythm disturbances (plus decompensation). He found decompensation with decreased blood volume (minus-decompensation) in patients whose dyspnea was slightest on lying down, who were somnolent, with surface area cyanosis, poorly filled neck veins, low venous pressure and decompensated after infection or disturbance of rhythm. This scheme does not seem justified since a clinical division is built up on the basis of a symptom, a procedure which is not done for other symptoms in patients with circulatory disturbances such as dyspnea, cyanosis, or edema. It is also difficult to classify these cases pathogenetically or to determine the pathologic-anatomic cause of the disease picture. One does not know exactly whether stasis is mechanical or due to insufficiency of the venous backflow. Wollheim classifies minus-decompensation and vasomotor collapse separately.

Hitzenberger and Tuchfeld found in compensated hypertonias decreased or barely normal blood volumes. In decompensated hypertonia and myomalacia slightly but occasionally greatly decreased blood volume. This was often found in connection with a large liver. They believed that the active or passive collection of large quantities of blood in the liver produced the small circulating volume of blood on the one hand and the painful liver stasis on the other hand. Decompensated emphysema was found to be associated with an increased circulating blood volume, a disease picture in which, according to Wenckebach, is usually small. Valvular lesions are nearly always associated with increased blood volume, varying with the degree of stenosis and the distribution of the stasis. In mitral stenosis there are relatively large amounts of blood. According to Wollheim, left insufficiency with orthopnea is usually associated with small blood volume. He did not find decreased circulating blood volume in decompensated emphysema and found the results of treatment on blood volume to be ex-

tremely variable. In hypertonia, Ewig and Winsberg found the circulating blood volume to be decreased at times, at times normal and half the cases increased. In decompensated hypertonia there was a definite, sometimes considerable increase. Normal or decreased volumes were never found in decompensated valve lesions.

The present authors made a study of blood volume in 82 patients, most of whom had circulatory disturbances, some had other diseases which were associated with circulatory disturbances. Group I consisted of 12 patients with clinically definite edema. They showed a decreased blood volume and a definitely decreased plasma volume. In edema there is difficulty in relating blood volume to normal body weight. It is, therefore, based on minimum weight in a non-edematous state. In cases of edema, even with severe decompensation there is a decrease in the circulating blood volume and the circulating plasma volume. This is in agreement with Volhard who stated that the greater the hydrops, the smaller the volume of circulating blood.

The Group II consisted of 13 normal persons. These were youthful people, chiefly students which explains the small absolute values. The average was 43 cc per kg. body weight for the circulating plasma volume and 80 cc. per kg. for the circulating blood volume. The lowest value obtained for plasma volume was 33 cc., the highest 51 cc., and for circulating blood volume, the lowest value 66 cc., and the highest 93 cc.

Group III comprised 9 cases of hypertonia. The variations were quite great. There were clinically thoroughly compensated or only slightly decompensated patients who had increased, normal or definitely decreased blood volumes. In beginning lung congestion, in cases with cardiac asthma (left insufficiency of the heart) there were increased values.

Group IV comprised 10 cases. In some cases there was low venous pressure with small plasma volumes, and group V was comprised of cases of emphysema, some with right heart failure in which the average volume of circulating blood was relatively large. This is in agreement with the findings of Hitzenger and Tuchfeld. Patients with considerable cyanosis had increased blood volumes.

Group VI consisted of 10 cases of decompensated mitral stenosis. In these cases there was an average considerable increase in the cir-

culating plasma volume to 52.3 cc. and of the blood volume to 103 cc.

Group VII comprised 13 cases of definitely enlarged liver. The plasma volume reached the highest average value of 54 cc., the blood volume its highest value of 107 cc. Three patients with liver cirrhosis had 98 and 105 cc., respectively. One patient with Bantis disease confirmed at autopsy had 112 cc. She had severe stasis hemorrhages. In a patient with polycythemia rubra of the Vaquez type the blood volume was 124 cc., the plasma value being normal. The remainder of cases consisted of mitral stenoses with definite enlargement of the liver and slight or absent edema. Not included in the table was a case of patent ductus Botalli (98 cc. blood, 48 cc. plasma) and a case of paroxysmal tachycardia (93 cc. blood, 42 cc. plasma).

In a number of cases during the course of treatment with improvement of the clinical picture the increased blood volumes and plasma volumes decreased to normal or nearly normal.

#### CONCLUSION

In this paper, it has been tried to summarize the physiological and pathological significance of blood volume and the different methods to determine it.

In passing I would like to express my appreciation to Dr. B. Pasterneck, Louis Hirsch, Miss Rose, the Librarian of St. Mary's, and Mr. Jose del Castillo for their valuable suggestions and kind assistance in helping me prepare this paper.

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# PHOENIX *Clinical* CLUB

## MASSACHUSETTS GENERAL HOSPITAL CASE NO. 17212

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

Dr. Sven M. Gundersen: This was a sixty-six year old married salesman who came into the hospital on March 17 in a rather delirious condition. His history was obtained from his wife. As he had been married to her only twenty years, the past history is probably unreliable.

He had passed an insurance examination nine years before admission and was perfectly well so far as she knew until three years before admission, when he started having symptoms of diabetes,—increased thirst and appetite, frequency of urination, some loss of weight and strength. His physician found sugar in his urine and put him on a diet, but gave him no insulin. He lost thirty pounds in three months under treatment and felt much improved. He returned to work and gradually to his normal diet when his physician died.

Ten months before admission he started to have dyspnea on exertion and also easy fatigue. These symptoms lasted until six months before admission, when he went to a doctor and was found to have an enlarged heart and also arteriosclerosis. He was given digitalis. From that time until admission the patient did not work. His activities were greatly diminished. He had to stay at home all the time and could get about the house only a little. Three months before admission he developed cough productive of a small amount of whitish sputum. At the same time he began having attacks of typical paroxysmal nocturnal dyspnea. Just before admission he had been having ten or twelve of these attacks at night. Three weeks before admission he suffered a return of the nocturia which he had three years before and became entirely disoriented and euphoric. At that time he began to have edema of the ankles and loss of appetite.

His physician gave him more digitalis, some colorless medicine which he called "nerve medicine", and some pills.

His first wife died of tuberculosis. Of her four pregnancies one child was stillborn, one died of tuberculosis and one was in an institution for the feeble-minded.

Clinical examination revealed a man obviously in a euphoric and irrational state. He was cyanotic, emaciated and quite dyspneic, sitting propped up in bed. The pupils were irregular and unequal and reacted poorly to light, better to accommodation. The heart was greatly enlarged to the left and downward. At the base were to-and-fro soft systolic and diastolic murmurs. The blood pressure was 165/0 to 185/0. There was marked arteriosclerosis. There was Corrigan pulse. The brachials were tortuous and sclerotic. There were signs of fluid at the right base posteriorly. There was a pistol shot in the groins. The right ankle jerk could not be obtained.

The white blood cell count was 15,000, with an essentially normal differential count. There was no anemia. The one urine specimen obtained showed no sugar.

The patient became rapidly more in spite of digalen given intramuscularly, and died forty-eight hours after admission.

Robert S. Flinn, M. D.

This 66 year old man was apparently perfectly well except for mild diabetes up until ten months before admission when he began to be troubled with heart failure. In spite of digitalis, there was apparently no improvement in his condition; he became more disabled; developed nocturnal dyspnea and became disoriented and euphoric.

On examination he was found to be cyanotic, emaciated, dyspneic and irrational. The pupils were irregular and unequal and reacted poorly to light, better to accommodation. The heart was greatly enlarged to the left and downward. At the base was a to-and-fro soft systolic and diastolic murmur and the blood pressure 165 to 185 systolic and 0 diastolic confirmed the diagnosis of aortic regurgitation. There were signs of fluid at the right base posteriorly. The



right ankle jerk could not be obtained from which one is forced to conclude that the left ankle jerk as well as the knee jerks were obtainable.

Let us discuss for a moment the clinical findings. The patient is said to be euphoric and irrational. A patient, mortally ill with heart disease, may be expected to be irrational but I cannot recall having seen a patient dying from heart disease who could be called euphoric. The cyanosis, the dyspnea and the emaciation can also be explained on the basis of his heart affliction. The pupils were described as irregular and unequal and reacted poorly to light but better to accommodation.

The Argyll-Robertson sign consists in the loss of contraction of the pupils to light with retention of contraction of the pupil to convergence and accommodation. It usually indicates injury to the mid-brain, commonly syphilitic. Indeed, it is a sign that is regarded as practically conclusive evidence of syphilis of the nervous system. It is one of the three classical signs of tabes, the other two being, of course, Westphal's sign (absent knee jerks) and Romberg's sign. I should hesitate to make a diagnosis of central nervous system lues on the basis of a questionable Argyll-Robertson pupil alone without collateral evidence. The statement "the right ankle jerks could not be obtained" implies that all other reflexes were physiological in character and not abnormal. It is possible, of course, that the patient was so critically ill and uncooperative that a satisfactory neurological examination could not be made. However, there is nothing in the past history, inaccurate as it is, to suggest the presence of tabes dorsalis. There is no history of the sharp, stabbing pains in the legs, the impairment of sensibility to pain, the impairment of sense of position of the limbs, the visceral crises or urinary incontinence. There is also no report of a flocculation test for syphilis but I presume the patient was in the hospital too short a time for such a test to be reported upon.

Although abnormality of pupillary reflex together with absence of deep reflexes are considered almost pathognomonic of cerebro-spinal syphilis, it should be remembered that Adie's syndrome, a benign disorder, may simulate tabes dorsalis. In this condition the pupils are unequal in size and react slightly to light. However, after about an hour in the dark, the pupils dilate and on exposure to bright light, a slow

contraction of the pupil is seen. Moreover it behaves in a curious fashion on convergence. If the patient fixes on a near object and continues to gaze at it intently, the pupil sometimes after a delay of several seconds, contracts slowly and with increasing slowness through a range often greatly in excess of normal. Contraction down to pinhead size is not uncommon. The larger pupil then becomes smaller than its fellow. The tonic pupil responds normally to mydriatics and miotics. There may be, in extreme cases, absence of all deep reflexes but more frequently there is an absence of one or both ankle jerks. This disorder is seen more frequently in females than in males and in the young adults. This cause is unknown. I can recall having seen this disorder in a young man at the Queens Square Hospital in London. A blood Wasserman taken as preliminary to a blood transfusion in which the patient was to act as donor, was reported as faintly positive. Examination disclosed the tonic pupils of Adie together with the absence of certain deep reflexes. A tentative diagnosis of tabes dorsalis was made until the second Wasserman report was negative and a more careful examination disclosed the differences between this tonic pupil and the Argyll-Robertson pupil. In the latter, males are more frequently affected, the pupil is usually bilaterally affected and does not respond to light but reacts promptly and normally to convergence and accommodation. It should be emphasized however that not infrequently Adie's syndrome has led to an erroneous diagnosis of tabes dorsalis.

When we turn to a consideration of the cardiac condition, it is apparent that the "guts of the situation," as the English say, is the differential diagnosis of the aortic diastolic murmur. I propose to dismiss the systolic murmur as being of little value in the differentiation, since aortic insufficiency is often accompanied by a systolic aortic murmur in association with a characteristic diastolic murmur and peripheral signs of aortic insufficiency. The systolic murmur in such cases is due to the forceful ejection of the blood into the aorta. However, it should be remembered that the patients with pure aortic stenosis or sub-aortic stenosis may have a systolic and diastolic aortic murmur. In such cases, however, the peripheral signs of aortic insufficiency are absent and the exact cause of the diastolic murmur here is not known. Coarcta-

tion of the aorta also produces a systolic murmur at the aortic area. This murmur is not only transmitted to the neck but to the back where it is as loud as the murmur is anteriorly. The question we must then decide is whether or not this patient's aortic insufficiency is on a syphilitic or on a rheumatic basis. The typical murmur of aortic insufficiency is blowing in character, occasionally musical, usually high pitched but may be soft or loud. It may or may not mask the second sound. When it is soft, it can be heard better with the patient leaning forward and by using the Bowles stethoscope or the naked ear. When the murmur is due to syphilitic aortic insufficiency, it is often very hard, loud and may sound like the buzzing of a saw and may even be audible without the stethoscope. The murmur of rheumatic aortic insufficiency is usually softer and lower pitched.

The murmur is transmitted along the left sternal border toward the apex. When it is due to rheumatic aortic insufficiency, it is usually heard best in the third left interspace and not in the aortic area, contrary to the murmur of syphilitic aortic insufficiency. Several reasons have been advanced for this. In rheumatic heart disease a clockwise rotation of the heart around its long axis is common. This rotates the aorta to the left. In syphilitic aortic insufficiency there is usually marked dilatation of the aorta which extends beneath the sternum towards the right. In addition, massive left ventricular enlargement is often present with its counter-clockwise rotation which rotates the aorta to the right. It should be pointed out that functional aortic insufficiency with all of the characteristic signs of organic aortic insufficiency can occur in dissecting aneurysm of the aorta and in dynamic dilatation of the aorta. In the former condition a diastolic murmur may appear if the dissecting column of blood causes deformity or incomplete coaptation of the aortic valve. In dynamic dilatation of the aorta there is a functional dilatation of the ascending aorta and aortic valve seen in patients with hypertensive cardiovascular disease, glomerulonephritis, in severe anemias, in hyperthyroidism and may even occur in patients with rheumatic heart disease. Although on physical examination the characteristic murmurs of aortic insufficiency are present together with the wide pulse pressure and other peripheral signs of organic aortic insufficiency, on post-mortem examination normal aortic valves

may be found and the aorta may be actually hypoplastic. Dynamic dilatation of the aorta can sometimes be suspected if the signs of the aortic insufficiency appear only during the time when the heart is over active or the patient is in heart failure, the signs disappearing when the heart rate slows or when cardiac compensation returns.

There are further differential points between the syphilitic and rheumatic aortic insufficiency which bear mentioning. Rheumatic aortic insufficiency, of course, is seen in younger aged groups; syphilitic aortic insufficiency in older people. Indeed, uncomplicated aortic insufficiency in adults over 35 years of age is rarely of rheumatic origin. Frequently in rheumatic aortic insufficiency precordial prominence or marked displacement of the left nipple is present indicating that the heart disease began in childhood. In most cases of syphilitic aortic insufficiency, the flocculation tests for syphilis is positive but it is possible for a patient with rheumatic heart disease to have coincidental syphilis. Neurosyphilis is present in a high per cent of cases of cardiovascular syphilis and such stigmata such as inequality or irregularity of pupils, the Argyll-Robertson pupil, the loss or diminution of knee or ankle jerks, abnormal spinal fluid findings and such as are usually present.

In the case under consideration, the description of the murmurs make it impossible to differentiate between syphilitic aortitis and rheumatic heart disease on the basis of the murmur alone. Moreover the past history lends little support to either diagnosis except that one may speculate that the one stillbirth and one feeble minded raises a suspicion of syphilis. The age of the patient favors a diagnosis of syphilis rather than that of rheumatic infection. That fact, together with the abnormality of the pupillary reflex, makes a diagnosis of syphilitic aortitis and neurosyphilis a most reasonable one.

Geo. G. McKhann, M. D.

We shall title this mystery, "The Wages of Sin".

Judge Phillips has picked a case that is short, looks easy, with an admittedly unreliable history, an insufficiency of X-ray and electrocardiographic reports, and a totally inadequate laboratory work-up. Either some pertinent information has been omitted, or the hospital staff was on vacation, or they were too busy working up my next case,—a three page one that Dr.

Dysart chose. However, there is ample clinical information.

Once last year I searched so hard for the "nigger in the wood pile", Dysphagia Lusoria, that I missed the wood pile completely,—a dissecting aneurysm of the aorta. This time I shall keep to the wood pile. Any "niggers" in it are hereby advised that they will not be disturbed.

Our patient was a 66 year old salesman, unconscious on March 17th. Could he have been Irish and have celebrated St. Patrick's Day too well?

His second wife of twenty years furnished the history which was said to be unreliable. Evidently he followed the dictum of "tell 'em nothing".

At the age of 57 he had no cardiac murmurs, for he passed a life insurance examination. At age 63 diabetes developed, as evidenced by polydipsia, polyphagia, polyuria, glycosuria, and loss of strength and weight. Diet with loss of thirty pounds in three months relieved the diabetes. He must have been overweight. He remained well for an unknown period until his own physician died, when he returned to his usual diet. The effect was not reported. For patients there is a moral to this story. Pay your doctor bills, and keep your physician alive. You may need him.

Anyway he continued well for one year and eleven months. Then dyspnea on exertion indicated developing heart disease. But he endured this for four months before choosing a new physician, who found arterio-sclerosis and an enlarged heart, for which he prescribed digitalis. Evidently this M.D. did not do a serology test either, nor did he take too careful a history. That ended our patient's working days, for now he could "only get around the house a little." After three more months pulmonary edema appeared, and nocturnal cardiac asthma, then disorientation, euphoria, nocturia, and ankle edema three weeks before admission. All these were no doubt signs of progressive cardiac failure. Medication: more digitalis, "nerve medicine", and pills.

Now we get the low down. His first wife died of tuberculosis as did one child. That does not seem pertinent. But this wife had one stillborn, and one child became an inmate of an institution for the feeble-minded. Even if we are not given his serology, these two facts lend suspicion of lues.

On admission he was euphoric, irrational, cyanotic, orthopneic, and had cardiac dilatation and hypertrophy of an aortic configuration, systolic and diastolic murmurs, a high systolic blood pressure with a zero diastolic, a Corrigan pulse, and "a pistol shot" in the femorals. All these pieces of the diagnostic picture puzzle when assembled reveal an aortic valvular lesion with complete insufficiency. A right hydrothorax appears early in heart failure. There was arterio-sclerosis also. Also there were symptoms and signs of a lesion of the nervous system,—namely irrationality (which might be ischemic), euphoria, anisocoria, Argyll-Robertson pupil, and an absent right ankle jerk.

A still-birth, a feeble-minded child, a gradual, late developing aortic regurgitation without acute illness or infection, and with neurological signs completes the wood pile, and these sticks fall into position to spell syphilis. He must have gotten it from or given it to his first wife. The only flaw in this is the long duration before the cardio-vascular and neurosyphilis developed, more than twenty years. Perhaps he had had some treatment from his own physician. Again one must say that it was most unfortunate that his own physician died.

But just to be certain of our diagnosis, let us review the possible sources of such a combination of clinical wood. According to Paul White the following may cause aortic insufficiency. First, Rheumatic Fever, of which we have no history. Such heart disease is said to occur more often in cold climates. The murmur is heard more often along the left sternal border. Second, Syphilis, in which the murmur is more likely to be along the right sternal border. This type of lesion is more often seen in warm climates,—a commentary on the sex habits of the natives. Third, Acute and Subacute Bacterial Endocarditis. We have no history consistent with such. Fourth, Sclerosis of the aorta and valves. Here a systolic murmur transmitted toward the neck is present, but the diastolic is usually lacking. Fifth, Trauma, of which we have no history. Sixth, Dissecting Aneurysm, which is a very rare cause of aortic regurgitation.

Rarely a dissecting aneurysm heals with a double barrelled aorta, and may result in aortic insufficiency. But we have no history of sudden onset with severe illness following excruciating pain, altho the hypertension, and the neurologic

signs might be consistent with dissecting aneurysm. Ten to fifteen percent of dissecting aneurysms are reported not to have pain. Probably many of these do not live long enough to give any history at all.

Still, a dissecting aneurysm might be the "nigger in the wood pile" that I have sworn not to disturb. But if it is, such a diagnosis is not permissible from the information given. The development is entirely lacking in the sudden, severe, tearing pain with shock, and step like spread of pain and neurological symptoms seen in dissecting aneurysm. Our patient had a slowly progressive development of symptoms. It was tragic that he was not treated earlier by his own physician.

My diagnosis is Syphilis with Syphilitic Aortitis with Aortic Insufficiency, and Neuro-syphilis.

#### CLINICAL DIAGNOSIS

(From Hospital Record)

Arteriosclerotic and luetic heart disease with aortic regurgitation.

Relative mitral insufficiency.

Congestive failure

Central nervous system lues?

Diabetes mellitus.

#### ANATOMIC DIAGNOSIS

Arteriosclerosis.

Syphilitic aortitis regurgitation.

Vascular nephritis.

Accessory lobes of the liver (gummata?)

Hyalin degeneration of the arterioles of the pancreas.

Cholesterosis of the gall bladder.

#### PATHOLOGIC DISCUSSION

Dr. Tracy B. Mallory: The autopsy on this man was unusual, showing the most extreme degree of arteriosclerosis that I think I have ever seen. I have his heart and kidneys here. I think even at this distance you can see the extraordinary degree of atheroma. The process is most marked in the ascending and abdominal portions. There is an extreme degree of vascular nephritis. We found evidence of arteriosclerosis everywhere.

Throughout almost the entire aorta there were raised areas varying from a few millimeters to a centimeter or more in diameter which were sometimes yellowish, more often pinkish in color, extending up a considerable distance, two or three sometimes four millimeters from the surface. Those masses looked almost like the vegetations seen on the heart valves in bacterial

endocarditis except that they were not quite so red. They did not seem to contain much fibrin. In between these areas the intima was thick, white and fibrous, here and there showing definite pitted scars quite suggestive of lues. Two of the cusps of the aortic valve were rather definitely separated and I feel quite certain represent a luetic lesion. Many cases of luetic aortitis show an associated very marked atheroma. In the face of atheroma, when it is marked one fairly regularly gets shallow ulcers, and in those ulcers little thrombi of platelets and fibrin commonly form. It is most unusual, however, to find such extensive thrombosis.

This section represents one of those projecting thrombi. Every one of those slits represents a crystal of either cholesterol or some fatty acid. The major portion of the mass consists of lipid crystals which are imbedded in a rather delicate hyalin matrix probably made up of fused platelets. It seems to contain very little fibrin. The media is very much narrowed, while the adventitia is much thicker and denser than usual and contains many perivascular clusters of lymphocytes. Such a picture is ordinarily taken as characteristic of lues. In some places the media shows vascularization, which is again suggestive of lues but not positive evidence.

The lung is quite interesting in that it too shows a very unusual degree of arteriosclerosis. This vessel for example is almost completely occluded. Only one-tenth of its lumen is patent. Here is another artery with well marked intimal thickening, though still fairly patent, while in the center of the field is a completely occluded artery.

The kidneys are typical of vascular nephritis. The cortex is narrowed. The larger vessels show thickened walls. The small vessels are hyalinized. Some of the glomeruli are completely sclerotic, and there are beginning areas of tubular atrophy about them.

The liver was quite interesting. It showed some very deep depressions which divided the liver into several small accessory lobes. The question came up as to whether it was a congenital abnormality or whether they were scars of healed gummata. It is very suggestive of a syphilitic lesion, although not entirely characteristic. In one section of the liver was a small area of necrosis. With the higher power you can make out the giant cells and a few lymphocytes. It may be either a miliary tu-



bercle, the only one found in any of our sections, or it may be a miliary syphilide. The remainder of the liver shows only very marked passive congestion. His pancreas shows a very definite hyalin degeneration of the arterioles which goes with the history of diabetes.

It is interesting in view of the extraordinary atheromatous deposits in the aorta that he had very marked cholesterosis of the gall gladder. That is an association which one would expect but as a matter of fact one only rarely finds. It would have been interesting if we could have got his blood fats.

Dr. Chester M. Jones: Were there any stones or gravel?

Dr. Mallory: No.

A Physician: Was syphilis the cause of his arteriosclerosis?

Dr. Mallory: I think the process is almost certainly a combined one of syphilis and atheromatosis. They very frequently are combined. In some of the cases of chronic syphilis one gets the most marked atheromatous lesions. I think that is probably the situation here, but I do not believe we are justified in assuming an

etiologic relationship.

Dr. Gundersen: There was strongly positive serology.

Dr. Mallory: Yes, and of course the family history fits too.

Dr. George W. Holmes: Did he have any x-rays?

Dr. Gundersen: No.

A Physician: Do you think there is any causal relation between atheromatosis and syphilis?

Dr. Mallory: I do not believe so.

Dr. Walter Bauer: Do you think this whole picture could have been caused by arteriosclerosis alone?

Dr. Mallory: No, I do not. The intimal changes in that aorta I think are purely atheroma. The changes in the aortic valve I am sure must have been syphilis; I do not see how atheroma could have done that. I am a little surprised that he showed as much clinical evidence of aortic regurgitation as he did. They could not measure his diastolic pressure. I think there is a large element of functional dilatation of the ring without a doubt.

## Editorial

### ARIZONA MEDICINE

*Journal of*

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

Reply to criticisms voiced against the American Medical Association in a proposed editorial prepared and distributed by the Citizens Committee for the Hoover Report.

A recent proposed editorial prepared and distributed by the Citizens Committee for the Hoover Report criticizes the American Medical

Association for its position with respect to S. 1140, 82nd Congress. This legislation proposed that a new Department of Health be established in the Executive Branch of the government, under which all federal health services, including most of the hospital facilities of the Armed Services and all of the Department of Medicine and Surgery of the Veterans Administration, would function.

The Hoover Commission's Report, which it is alleged S. 1140 would effectuate, was presented in March, 1949, based on reports received from its Medical Task Force in January and February of 1949. Although the report did recommend, in part, the program proposed by the pending bill, the basic or primary recommendations of the commission were that:

- (a) the Congress clearly define the beneficiaries entitled to medical care from the federal government and the relative priorities of such beneficiaries, and
- (b) the present inconsistencies in the federal hospital construction program be resolved.

The Medical Task Force, in conducting the studies prior to the issuance of its report, found that the existing federal medical program was "devoid of any central plan" and concluded that there must be over-all planning, which would require "first a clear definition of the extent of the responsibilities, and second an organization appropriate to carry out the commitment." Although S. 1140 would establish an agency for "carrying out the commitment," the primary recommendations have been ignored.

In addition to the vital objections referred to above, the American Medical Association objects to the inclusion of the medical facilities of the Armed Services and the Veterans Administration in the new Department of Health. It is the belief of the association that such a transfer would be difficult at this time without seriously hampering the primary mission of the Armed Services and the Veterans Administration. The proposed transfer of military installations, although questionable even in peacetime, would be fraught with danger during the present emergency.

The aforementioned editorial indicated that the opposition of the American Medical Association to this legislation is directed to certain minor details in the bill. On the contrary, it is obvious from the above facts that the objections of the

association are basic.

The editorial states that even the proponents of the measure are in agreement with the A.M.A.'s position with respect to the transfer of the hospitals of the Armed Services. Despite this agreement, however, S. 1140 still provides for the inclusion of the major medical military facilities in the new Department of Health.

The American Medical Association is in favor of the establishment of a Department of Health and is in wholehearted accord with the desire to effect economy in the operation of federal medical services, but it is the belief of the association that S. 1140 will not accomplish the desired results.

The American Medical Association has repeatedly pointed out the wastefulness of the present uncoordinated system of providing medical care and hospital benefits by the federal government. Testimony to this effect was presented before the Senate Committee on Labor and Public Welfare during the 81st Congress on a similar bill, S. 2008. Since that time the Board of Trustees of the association has on several occasions (most recently on Feb. 8, 1952) reiterated its belief that the best way to institute governmental economy in the use of funds and medical manpower is:

- (a) to obtain a clear congressional definition of the extent of the government's responsibility for furnishing medical care with particular reference to the treatment of veterans with nonservice-connected disabilities and the dependents of service personnel; and
- (b) to establish a federal board to control the distribution of beds among the several federal hospital services, to insure joint planning in the field of hospital construction and to determine the need and location of proposed new hospitals in the United States.

The editorial also leaves the distinct impression that the American Medical Association has been unwilling to discuss its position in an attempt to arrive at a satisfactory solution to the problem. This is untrue.

In response to an invitation from the National Doctors Committee, an affiliate of the Citizens Committee, representatives of the American Medical Association met with that committee on several occasions for the purpose of reconciling the divergent views concerning this legislation.

## Clinical Results\* with Banthine® Bromide

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### 22 Published Reports Covering Treatment of 1443 Peptic Ulcer Patients with Banthine

Comprising the reports published in the literature to date which give specific facts and figures of the results of treatment

AUTHORS	No. of Patients	Chronic, Resistant to Other Therapy	TYPES OF ULCERS				RELIEF OF SYMPTOMS (Chiefly Pain)				Surgery or Complications	Side Effects Requiring Discontinuance of Drug <sup>1</sup>	EVIDENCE OF HEALING			
			Duodenal	Jejunal	Stomal	Gastric	Good	Fair	Poor	No Report			Complete	Moderate	None	No Report
Grimson, Lyons, Reeves	100	100	93	7			80	11	4		5		47		19	29
Friedman	15	15	14			1	5		4	6 <sup>2</sup>			2			13
Beckgaard, Nielsen, Bang, Graubund, Tolbassen	26	26	21			5	16	4	6				8	6	12	
McHardy, Brown, Edwards, Marek, Ward	162		162				136	12	11		3	1	14	9	7	129
Sagel, Friedman, Watson	34	34	34 <sup>4</sup>				14	13			7	2	5		8	14
Brown, Collins	117	99	117				97	7	8		5	8	55	9	8	40
Ascher	77		65		7	5	52	9	16			16		9	21	47
Rodriguez de la Vega, Reyes Diaz	5	4	5				4		1				3		2	
Winkelsstein	116	116	102	8		6	102		14				53		18	45
Hall, Hunsicker, Weeks	18	18	18				11		1	6 <sup>2</sup>			18			
Hailer, Meili	38	38	24			14 <sup>4</sup>	27	7	4 <sup>2</sup>				10	2	5	21
Meyer, Jarman	25	18	25				21		4							25
Poth, Fromm	37	37	37				33	3	1				33	3	1	
Plummer, Burke, Williams	41	41	41				36		5				38		3	
McDonough, O'Neil	104	100	104				63	10	31			11	4		11	89
Broders	60	60	58		1	1	35	19	6				10	1	49 <sup>4</sup>	
Lagerton, Texier, Ruffin	11		11				11									11
Holubek, Holubek, Langford	76	69	76				35	27	10		4	10	26		10	36
Ogden	42		39	2		1	42 <sup>4</sup>									42
Skalken	48	48	48				33	10	3		2		33	10	3	
Johnston	145	145	145				143		2			2	143		2	
Russell, Knox, Stephenson	146		141			5	146					4 <sup>10</sup>	53			93
TOTALS	1443	968	1380	17	8	38	1142	132	131	13	26	34	352	32	179	634
PERCENTAGES		67.8	95.6	1.2	0.6	2.6	81.3	9.4	9.3			3.7	70.5	6.6	22.9	

1. Not included in tabulations.
2. Included in "Relief of Symptoms" as "Poor" and in "Evidence of Healing" as "None."
3. Four had no symptoms when Banthine therapy was begun.
4. Of which seven were penetrative lesions and five partially obstructive.
5. No symptoms were present in four.

6. Two with symptoms only; no demonstrable ulcer.
7. Three were psychopathic patients and one had a ventricular ulcer of the lesser curvature.
8. Roentgen findings after treatment period of two weeks; forty-seven had subnormal deformity.
9. All returned to work within a week.
10. In these four, after relief of symptoms, Banthine was discontinued because of urinary retention.

During the past two years, more than 200 references to Banthine therapy in peptic ulcer and other parasymphathetic conditions have appeared in medical literature. Of these reports, 22 have presented specific facts and figures on the results of treatment in a total of 1,443 peptic ulcer patients, 67.8 per cent of whom were reported as chronic or resistant to other therapy. These results are tabulated above and show:

"Good" relief of symptoms was obtained in 81.3 per cent of the 1,405 patients on whom reports were available.

"Complete" evidence of healing was obtained in 70.5 per cent of the 883 patients on whom reports were available.

In all but 9.7 per cent, relief of pain was "good" or "fair." In all but 22.9 per cent, evidence of healing was "complete" or "moderate."

During treatment, 26 patients required surgery or developed complications other than ulcer which required discontinuance of the drug before results could be evaluated.

Of the remaining 1,417 patients, only 3.7 per cent experienced side effects sufficiently annoying to require discontinuance of the drug.



\*Volume containing complete references, with abstracts of 39 additional reports, will be furnished on request by

G. D. SEARLE & Co., P. O. Box 5110, Chicago 80, Illinois.

At those conferences representatives of the Citizens Committee and its affiliated Doctors Committee indicated orally that they would be agreeable to suggested amendatory legislation which would incorporate the majority of the suggestions presented by the American Medical Association. A revised bill was subsequently prepared and submitted to the association for consideration.

After a careful study of the substitute proposal, the American Medical Association's Committee on Legislation noted that, while certain minor suggested changes had been made, the revised bill still included the transfer of the major military and all Veterans Administration hospitals a transfer opposed by the A.M.A. Also, no provisions were incorporated which would clearly define the extent of the government's responsibility for furnishing medical care, particularly to veterans with nonservice-connected disabilities and the dependents of service personnel. Neither did it provide for the establishment of a federal board to control the distribution of beds among the several federal hospital services to insure joint planning in the field of hospital construction and to determine the

need and location of proposed new hospitals in the United States.

Therefore, the American Medical Association was left no other alternative but to continue its opposition to S. 1140.

Notwithstanding the validity of certain of the recommendations of the Hoover Commission at the time of the issuance of the report in 1949, such proposals are not necessarily applicable today, due in part to the hostilities in Korea and to the threat of war in various other parts of the world.

The proposed editorial is inaccurate in that it implies the official endorsement of the pending legislation by the American College of Surgeons, the American Academy of General Practice and others. Official endorsement by these organizations has not been given. Furthermore, a number of public and private agencies testified in opposition to the bill at the time of the recent hearings before the Senate Committee on Expenditures in the Executive Department. These agencies included the Department of Defense, the Veterans Administration, the Federal Security Agency, the American Legion, and the Veterans of Foreign Wars.

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# THE *Secretary's* MESSAGE

## YOUR GRIEVANCE COMMITTEE

THE ANNUAL REPORT OF YOUR GRIEVANCE COMMITTEE COVERING IN DETAIL, CASE BY CASE, THE RESULTS OF ITS FIRST COMPLETE YEAR OF OPERATION, PRESENTED TO THE HOUSE OF DELEGATES IN ANNUAL SESSION HELD RECENTLY, IS A DOCUMENT WHICH ATTRACTED CONSIDERABLE ATTENTION. THE REFERENCE COMMITTEE ON REPORTS OF STANDING COMMITTEES WAS SO IMPRESSED WITH ITS INTERESTING AND INSTRUCTIVE CONTENT THAT IT RECOMMENDED, FOR THE EDIFICATION OF ALL MEMBERS OF THE ASSOCIATION, REPRODUCTION OF THAT PORTION OF THE REPORT DEALING WITH TIMELY SUGGESTIONS TO THE MEDICAL PROFESSION, BELOW PUBLISHED:

"IT IS THE OBSERVATION OF YOUR GRIEVANCE COMMITTEE THAT MANY OF THE COMPLAINTS FILED COULD HAVE BEEN AVOIDED HAD WE, AS PHYSICIANS, BEEN JUST A BIT MORE CONSIDERATE OF OUR PATIENTS. WE COMMEND FOR YOUR FAVORABLE CONSIDERATION, THE FOLLOWING SUGGESTIONS:

- "1. AS SOON AS PRACTICABLE, TAKE THE TIME TO EXPLAIN TO THE PATIENT HIS CONDITION IN LANGUAGE HE WILL UNDERSTAND. INTERPRET YOUR FEE, THEREBY GIVING HIM THE OPPORTUNITY TO DISCUSS ABILITY TO PAY.
- "2. WHERE SURGERY IS INDICATED, HAVE COMPLETE UNDERSTANDING OF FEES INVOLVED, PROBABLE HOSPITAL COSTS INCLUDING ANESTHESIOLOGY, PATHOLOGY AND RADIOLOGY. ARRANGE A CONSULTATION, WHENEVER POSSIBLE, BETWEEN THE PATIENT AND ANESTHETIST PRIOR TO OPERATION. THE PATIENT SHOULD BE MADE TO UNDERSTAND THAT THE ANESTHETIST TOO IS AN IMPORTANT PART OF THE OPERATING TEAM AND MAY EXPECT TO RECEIVE A SEPARATE BILL FOR HIS FEE.
- "3. ITEMIZED MONTHLY BILLS WITH LABORATORY FEES, ETC. SEPARATED WILL ELIMINATE MANY COMPLAINTS. THE PATIENT IS ENTITLED TO KNOW WHAT HE OR SHE IS PAYING FOR. IT IS SOUND BUSINESS PRACTICE.
- "4. PATIENTS SHOULD BE MADE TO UNDERSTAND THAT A CURE CANNOT BE 'GUARANTEED.' TOO MANY BELIEVE IT CAN BE AND EXPECT SUCH ASSURANCE, ONLY LATER TO BECOME COMPLETELY DISSATISFIED WITH DIAGNOSIS AND TREATMENT PRESCRIBED.
- "5. MAKE A CONCERTED EFFORT TO REDUCE TO A MINIMUM THE 'WAITING TIME' REQUIRED OF PATIENTS SCHEDULED FOR OFFICE APPOINTMENTS. WHEN AN EMERGENCY ARISES, HAVE YOUR SECRETARY ENDEAVOR TO CONTACT PATIENTS BEFORE THEIR DEPARTURE FOR YOUR OFFICE, RESCHEDULING THE APPOINTMENT.
- "6. IT IS A FACT THAT 'LOOSE TALK' AND 'UNGUARDED STATEMENTS' ARE THE BASIS FOR NINE OUT OF TEN MALPRACTICE SUITS."

# TOPICS OF *Current Medical* INTEREST

## RX, DX, AND DRS.

By GUILLERMO OSLER, M.D.

An improved drug for the treatment of gout and arthritis has been reported at the April California Medical Ass'n. Meeting. . . . Dr. R. W. Shaffarick of Stanford described the use of 'PHENYL BUTAZONE', a drug developed in Switzerland. It seems to be almost a specific remedy for gout, effective to some degree in all cases of rheumatoid arthritis; it was also of value in spinal arthritis, and acute bursitis usually subsided. . . . The drug is said to have fewer toxic effects than ACTH and cortisone, with no effect on the glandular balance. . . . It is said to be 'a powerful temporary suppressor'. The best effects are on pain and inflammation.

Civil Defense in the Los Angeles area has estimated the results of eight ATOMIC BOMB strikes in California, partly in order to know what provisions to make for hospital care. . . . Total casualties would reach 378,000; total requiring hospitalization (¾) would be 252,000; maximum number of people in hospitals at one time (¾) would be 189,000. . . . The casualties wouldn't be more numerous in Arizona—just more important.

A decision on whether to abandon silver nitrate as a prophylaxis for gonorrheal OPHTHALMIA OF THE NEWBORN will have to come sometime, but it won't be at once. The usage is too entrenched, and a substitute is too controversial. . . . Nevertheless the silver preparation is a frequent irritant, and fails twice in a thousand cases. Penicillin, which may not be the ultimate best, has failed once in 28,169 collected cases, and in one series of 2,667, not at all.

Dr. Emil Bogen, a leading tuberculosis research worker in Los Angeles, has shown the logical connection between all of the drugs used for TREATMENT OF TUBERCULOSIS. . . . The sulfones, PAS, streptomycin, aldinamide, and the new isonicotinic acid hydrazide (INH) drugs all contain the benzene ring as a nucleus. . . . The connection is not a progress from one to another, since they have been found separately and often long ago. It should give a future lead for search or synthesis, however.

Resistance of bacilli (in vivo) from use of an INH drug has now been reported by communication from New York. It was hoped that this might be an absent quality of the drugs, but it was predicted that it should be expected. . . . The first notable roundup on the drug effects should be reported from the national TB meetings in Boston in late May. You probably will see data in the

newspapers before we can give it to you here. . . . An amazing dynamic piece of research and publication has just appeared,—The V.A. Tuberculosis section was told of the INH drugs on January 22nd; a working protocol was set up in 10 days in a dozen V.A. Hospitals; the drug was available and started by and after February 5th; an official visited the hospitals and interviewed most of the early patients; the summaries of 2 to 8 weeks of usage were sent to Washington as available; and a mimeographed report was back in the hands of the consultants by April 23rd. Truly a wonderful job of correlation. . . . However the INH drugs eventually fit into the therapy program, the early effects (2 to 4 weeks) of their use are dramatic. Fever and sputum drop; appetite and weight rise. Now we'll see the bacterial and x-ray studies.

NURSING HOMES now have a bimonthly journal, the 'Nursing Home Administrator.' . . . It could be a sign of more nursing homes, or a need for such a publication, or of an improvement in nursing homes. They are badly in need of a lift, in large cities, where they are hard to control. . . . The cover of a recent issue was badly chosen. It showed a patient in bed under restraint by a new kind of harness.

A paradox of pharmacology (not clear to this here scientist) is a new Merck drug, 'Nalline', said to be a specific ANTIDOTE FOR OVERDOSAGE OF MORPHINE, its derivatives, and meperidine, and methadone. . . . The paradox is that the drug is an opium derivative, and requires a narcotic Rx. . . . It is given parenterally, preferably by vein for fast (2 min.) action. It is a strong respiratory stimulant in narcotized patients.

The World Health Organization has been surveying European countries for tuberculosis infection, as a prelude to BCG VACCINATION. The incidence at the age of 20 years is so high as to be nearly universal. . . . The chief result, other than epidemiological data, seems to be the slicing of the good old tuberculin test into tiny pieces. Nothing seems certain when the statisticians move in.

Dr. Kenneth Eastlick of the University of Michigan school of dentistry pleads again for a slow hand in pulling 'bushels of teeth' unnecessarily. . . . Dental research confirms the belief that pyorrhea does not condemn teeth. Treatment of infection and 'splinting' of the affected teeth may save them. . . . The connection of possible periodontal lesions, with inflammation elsewhere, is so much less certain that another reason is removed.

... Strangely, the belief in extraction dies hardest among patients, not dentists. They have heard of the reasons for, not against it.

---

Dr. Frank Courtwright has dissected the meaning of the phrase 'PROFESSIONAL COURTESY'. He finds more to it than a remission of charges for service to another doctor. . . . The physician, he says, should survey his courtesy towards the people with whom he works—and probably revise it. (Do you throw instruments? Are you sorry? Are you ever wrong? Does your lack of sleep show?) . . . Courtesy to patients could often be improved. (Do you tell your patients anything? Enough? Readily?) . . . Courtesy to other physicians can exceed a casual greeting in the corridor, or a referred patient. (Do you say 'Who in the world prescribed bifocals for you? or 'Why would a surgeon operate on such a condition!)

---

Dr. B. B. Stamell of Detroit takes a refreshing pediatric approach in the Journal of the Michigan State Medical Society. He writes on 'The Emotionally HEALTHY Child'. . . . Certain traits must be developed, certain behavior must be cultivated, and certain needs must be satisfied in the home life. . . . The list which he surveys includes love, security, a moderate protection, a minimum of anger, a lack of family discord, a sense of worth and self-respect and self-esteem, with sufficient approval, acceptance of individuality, a need for direction with a balance of limitations and of pressure, the use of play for development, the culture of independence and adaptability. . . . This list is probably as complex and disturbing to many physicians as it is to most parents. It is the target, however.

---

More than 3 years ago a case was described in the now-discontinued section 'ARIZONA MEDICAL PROBLEMS'—Dr. N. C. Gilbert of Chicago (then editor of the Archives of Internal Medicine and medical chief at Northwestern) wrote the case-analysis for the problem. . . . The problem was a difficult one and the diagnosis was "a Collagen disease, probably dermatomyositis". . . . A progress note can now be made. The patient found that rest gave her great relief from pain in the abdomen and in the extremities, but her resttime was limited because she had to continue work. Trials of cortisone produced symptomatic relief, tho it was transient. . . . At present the blood pressure, once elevated only with work or tension, often goes to 250 mm. The skin lesions are not active if the patient is not exposed to much sun. She has moved to the coastal area of California! . . . The diagnosis has apparently been confirmed, and the progress is as expected, tho of a chronic sort.

## REPORT OF THE CHAIRMAN OF COUNCIL

To date, two meetings of the Council have been held, and both were well attended. The fact that it was necessary to call only two meetings since May, 1951, to conduct the business affairs of this Association, is an eloquent testimonial to the efficiency of our Executive Secretary, Robert Carpenter, and his staff in the central office.

At these meetings, the financial and other business transactions of the Association receive careful consideration. I am impressed by the manner in which disbursement of funds is handled by a group of doctors; physicians are supposed to be poor businessmen! However, you may be assured that the funds of this Association are jealously guarded by your own colleagues, duly elected to represent you.

Matters of legislation pertaining to public health and the practice of medicine and other healing arts are also discussed. Your Council is kept fully informed of pending legislation at all times by the Legislation Committee headed by Dr. Jesse D. Hamer, and by our attorney, Edward Jacobson. This Council favorably reviewed and supported legislation to provide aid, both moral and financial, to Arizona residents who apply for admission to medical schools. The Council also favored the proposed Amendment to the Medical Practice Act, and the proposed Nurses' Practice Act, and the Act creating a Board of Physical Therapy Examiners.

Not all of the actions of the Council are those of formulation of policy. In this democratic organization, The Arizona Medical Association, Inc., the formulation of policy belongs rightfully to the House of Delegates. However, it must be realized that the members of the Council are also your duly elected representatives, who act in your interest and in the interest of providing good medical care and health services to the people of Arizona. The reports of the various Committees and Boards are also considered in detail. The Committee on By-Laws of the Constitution, of which Dr. Edward M. Hayden is Chairman, is working on a draft of Articles of Incorporation of this Association, and we hope to have these ready soon for your consideration and approval. Group coverage for Health and Accident Insurance, available at reduced premium to all members of this Association, is also being deliberated. Action on this



matter is being deferred until we are able to analyze all submitted proposals. Your Chairman of the Council feels that the Council made a wise choice in its action of retaining the firm of Snell and Wilmer as attorneys for this Association. I wish to commend Mr. Edward Jacobson, a member of that firm, for his services in behalf of this group. I also express my sincere thanks to my colleagues in this Council for their guidance, their cooperation, and their unselfish sacrifices in giving up their week-ends of rest to travel long distances, and giving, without complaint, of their services—to all of us.

Respectfully submitted A. I. Podolsky, M.D.  
Chairman — Council

### 1951-52 Annual Report of Secretary

During the fiscal year 1951-52 not yet completed, seventy (70) new medical doctors were accepted into membership of our component societies and this Association. Of this number, 29 were admitted into Maricopa, 20 into Pima, 7 into Yuma, 5 into Yavapai, 3 into Pinal, 2 each into Cochise and Coconino, and 1 each into Gila and Navajo County Medical Societies. Total membership as of this writing is 667 for a net gain of 47 over last year. For the knowledge of the members, I am listing below by county medical society, of which there are fourteen (14), membership in each:

Apache	3	Mohave	2
Cochise	19	Navajo	8
Coconino	10	Pima	193
Gila	18	Pinal	16
Graham	6	Santa Cruz	8
Greenlee	5	Yavapai	21
Maricopa	336	Yuma	22

Further broken down into membership classifications, there are 611 "Active" (of which 10 are designated "Fifty Year Club"), 47 "Affiliate" (of which 17 are "Military"), and 9 "Associate" members. As we multiply, so grow our responsibilities to the profession and the communities in which we serve.

The Council held three meetings here in Phoenix, June 3, 1951, January 13, 1952, and March 30, 1952, each of a full day's duration, and is scheduled to meet again on April 29. Well attended with representation from all quarters of the state, the business of your Association continues to be handled with efficiency and dispatch. Matters of vital concern to the medical profession were discussed and decisions reached which

will, no doubt, be the subject of report by your chairman of Council. Outstanding was its interest and handling of the legislative program during the Second Regular Session of the Twentieth Legislature. Here again the details will appear in the report of the Legislation Committee, but it is worthy of mention that we experienced another successful year under the able guidance and leadership of our attorney. The Constitution and By-Laws Committee has devoted considerable time and effort toward the revision of our By-Laws, approved at our last meeting. It is anticipated the House of Delegates will give deliberation to its final adoption during the forthcoming Annual Meeting.

The Professional Board met in Phoenix on October 21, 1951, and again on March 16, 1952, with anticipation of a further meeting during the Annual Meeting just ahead; the Public Relations Board held meetings in July and November of last year; and the Grievance Committee held four meetings in 1951. Each has prepared a report of its stewardship and accomplishments which will be presented to the House. The Arizona Advisory Committee to the Selective Service System has functioned effectively throughout the fiscal year and the Civil Defense Committee has stepped up its pace, attending many meetings, the result of activation of the State Civil Defense Agency. The Medical Defense Committee has to its credit the successful trial of an important malpractice suit and stands ever ready to defend our members when called upon so to do. The Industrial Relations Committee has had a busy year and out of its deliberations it is anticipated will come a revised fee schedule more in keeping with the changed economic conditions prevailing. This latter phase will be a topic of discussion during the coming Scientific Sessions.

The established policy of filing with the Secretary of each of our component societies a summary of the proceedings of Council and our various Boards and Committees, prepared through this office, has been continued. The membership has been similarly informed through the Journal.

ARIZONA MEDICINE, the official Journal of the Association, I am proud to state, continues as one of the outstanding scientific publications among the constituent state associations. Circulation has reached 3328 copies monthly, and the Business Manager is due credit for his devotion to its progress. It is also interesting to note in

connection with the publication of ARIZONA MEDICINE that exchange copy with forty-three foreign county medical society libraries has been effected, resulting in periodical requests for reprints of our scientific articles. The Editorial Board has functioned effectively and as Editor I am most grateful for their untiring assistance.

The Executive Secretary has given full cooperation to and effective administration of the duties of this office. As we grow, so mounts the burdens and tasks involving voluminous detail in the conduct of our business. With a staff of two competent stenographers and many long hours of effort, I can report with satisfaction that we are obtaining results. The conduct of the Annual Meeting alone is a continuing business process from one session to the next and each seems to surpass the previous one which must be a source of pride to all of us. He has attended all meetings of the Maricopa County Medical Society, including its Grievance Committee, easily accessible due to location here in Phoenix; two meetings of our Pima County Medical Society; and one each of our Yuma and Yavapai Societies. It is his intention to continue this program of visitation and expand it to cover all societies within the next fiscal year as opportunity affords. Likewise, he attended the annual meeting and clinical session of the American Medical Association and meetings too numerous to mention involving civic, health and allied societies whose activities are of interest to the medical profession, keeping us well informed. Space will not permit of a detailed report of his activities, suffice to say, that we are receiving a good accounting of his stewardship.

In conclusion, it is my observation that the Officers and Council of our Association, together with the members of our various Boards and Committees, have completed another year of successful administration and accomplishments. Each is well aware of his responsibilities and has served with distinction and untiring energy. It has been a privilege and pleasure to have served you and I hasten to take this opportunity to again thank each and all of you for your continuing support, cooperation and indulgence.

Respectfully submitted,  
Frank J. Milloy, M. D.  
Secretary Arizona Medical Association  
Editor Arizona Medicine

## PRESIDENT'S REPORT

Mr. Speaker, members of the House of Delegates: The state of your Association is excellent.

The purpose of this report is to acquaint you with some of the activities during the past year, and to emphasize some of the work that has been done by your officers and committees, and to propose some problems that must be given consideration.

The accomplishment of projects this year has been the result of the untiring efforts of many of your officers, committee chairmen and committee members, and cannot in any way be attributed to one individual or the influence of any one individual.

The burden of carrying on the day to day business of the Association during this past year has been born by your Secretary who has had to devote a part of each day to the transaction of Association business. Our very capable Executive Secretary has made it possible to handle the volume of business in an orderly manner.

Your Vice-President has spent many hours revising our Constitution and By-Laws, which must be adopted at this meeting.

The Treasurer has devoted an enormous amount of time during the year, not only to the routine of bookkeeping but in trying to devise ways and means of making your dollars stretch over a long list of activities. The genes for such a characteristic have apparently been handed down from father to son. When you quickly analyze the Treasurer's report, and rapidly calculate that it is entirely wrong, keep in mind the facts that *only* paying members of the Association are reflected in the bank balance; don't overlook the continued depreciation of the dollar, increasing costs, and the inevitable increase in salaries. The ability of your Treasurer to keep the books out of the red this year was partly due to the fact that several of our Standing Committees did not use their allotted budget. Our Association is at that awkward stage when it is really just a baby, but is expected to keep up with the larger Associations, both on a state and national level. In considering a budget for the coming year, consider seriously the recommendations for your Treasurer. An expenditure which has been little understood by many is the allotment to the Woman's Auxiliary to the Arizona Medical Association. Just recently this has been increased to an amount that permits that organization to function with some freedom.

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If nothing more were accomplished than Public Relations, the cost to the Association would be cheap. Be cautious about the dissipation of the Medical Defense Fund. This sum is too small for many of the proposed plans, but still is large enough to do a lot of good for the Association if wisely used. All the foregoing leads to the consideration of the appointment of a Budget Committee to function throughout the entire year, and to the possibility of increasing our annual dues sufficiently to insure a margin of safety commensurate with increasing costs and activities.

Your Council has met throughout the year to transact the necessary business. You may be assured that each member has sincerely guarded the democratic principles of your organization, and at no time has there ever been any doubt that any member of the Council or the Council as a whole has attempted to further anything that would not benefit the entire Association, or that might be objectionable to the members of the House of Delegates, or to the individual County Societies.

The district Councilors and Councilors-at-Large have not been as active as they should have been. However, with the adoption of the new By-Laws, perhaps these duties will be fulfilled.

The Professional Board has been handicapped by lack of a Chairman to direct it until the appointment of the present Chairman, and it is hoped that this very important Board will function with the same enthusiasm that it has in past years. Individual members of the Board, however, are to be complimented for their work.

As you know, Public Relations has been stressed from the national level, and this will continue to be one of our best weapons against Socialization. Every member of the Association is a member of this Board, since good Public Relations start with each individual doctor.

Time will not permit a lengthy report on all our Committees. The Committees on History and Obituaries, Industrial Relations, Medical Economics and Publishing have functioned well.

The Scientific Assembly has grown too large and too important to be handled by anyone inexperienced in this procedure. It is conceivable that sometime the President-Elect will have neither the experience nor the ability required to handle such an assignment. The By-

Laws, as they stand, designate the President-Elect to be Chairman of the Committee on Scientific Assembly. Should we consider the appointment of an experienced, capable Chairman for this Committee by the Council for a three-year term, and have the President-Elect an ex-officio member?

The Arizona Advisory Committee to the Selective Service System is to be commended for accomplishing a very difficult and distasteful duty, which required much time, energy and travel in the performance of this assignment.

Members of the Association who have worked on Civil Defense are also to be recognized for their arduous, and at times confusing, task.

Your Committee on Legislation has worked hard this year, but their efforts have paid dividends. The Association is very fortunate in having a Committee that is experienced in legislative matters and capable of carrying through in spite of many reverses. The Chairman of this Committee with the help of the Secretary, the Executive Secretary and members of the Association who responded when called upon have placed the Association in a rather enviable position. Our legal advisor is responsible in no small measure to the success of our program this year. Through his insight in guiding the action of our Committee, we were successful in our undertaking. Let us remember also that we were blessed with a Governor and many Legislators who would listen to our problems and would consider them with understanding and reason. A word of caution must be injected into the discussion regarding legislation. Each member of the Association should be familiar with the procedure as set forth in our By-Laws regarding Legislation and the Legislative Committee, and particularly to that portion which specifically states, quote: "No County Society, group of members, or individual members shall advance any medical legislation as representative of the view points of the Arizona Medical Association, Inc., or of any of its component societies, without obtaining the consent of this Committee," unquote. This in no way construes the idea that the Association is attempting to be dictatorial. It is merely a means of having one Committee responsible for our actions, and to prevent any such unhappy circumstances as might result should separate committees or groups of individuals attempt to further legislation along divided lines and opinions, thus leaving serious



doubt in the minds of the Legislators as to just what the Medical Profession really wants.

Your Grievance Committee has functioned well, and is beginning to show results in improved Public Relations. The importance of this Committee will grow as it becomes older and better established.

With deep humility, I thank each officer, each member of the Council, each committeeman, and individual member and our two "adopted" members, our Executive Secretary and our Legal Advisor, for their help during the past year.

Respectfully submitted,

Harry T. Southworth, M. D.  
President

—O—

### PERSONAL NOTE

*Dr. William Snyder* of Phoenix was certified as a Diplomate of the American Board of Dermatology and Syphilology at their recent examinations in Chicago.

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## LEGISLATION COMMITTEE 1951-52 Annual Report

The Legislation Committee of this Association is pleased to submit its Annual Report relating to its activities before the Twentieth Legislature of the State of Arizona—Second Regular Session.

### *H.B. 22—Medical Practice Act Amendment— Approved*

Drawn with the cooperation of the Attorney General's office, this Bill encompasses all of the possible grounds for suspension, refusal or revocation of a license by the State Board of Medical Examiners based on the strongest comparable statutes of the states of New York, New Jersey, Michigan, Minnesota, Illinois, California and Massachusetts. Briefly, it provides for such suspension, refusal or revocation on the grounds:

(a) Having professional connection with, or lending one's name to an illegal practitioner of medicine or any of the healing arts. (The introduction of this Bill alone was sufficient to cause "El Docteur" to move to New Mexico).

(b) Gross malpractice resulting in death of a patient.

(c) Fraudulent representation that a manifestly incurable condition of sickness, disease or injury of any person can be permanently cured or that a curable condition of sickness, disease or injury can be cured within a stated time if such be not the fact.

(d) Any conduct or practice contrary to recognized standards of ethics of the medical profession, or any conduct or practice which constitutes a danger to the health, welfare or safety of a patient or the public.

(e) When the holder of a certificate is mentally or physically unable safely to engage in the practice of medicine and surgery.

(f) When the holder of a certificate has been declared insane by a court of competent jurisdiction and not thereafter having been lawfully declared sane.

(g) When any condition exists which impairs the intellect or judgment to such an extent as to incapacitate him for the safe performance of his professional duties.

The Bill also provides mechanics for judicial review and appeal of any finding of the State Board of Medical Examiners in such hearing.

This, the principal piece of legislation of our Association for the year 1952, passed with the

"emergency clause" attached, was signed by the Governor on March sixth and became Chapter 16 of the Session Laws of the Second Regular Session of the Twentieth Legislature.

### *State Hospital Board*

Arising out of and as a part of the legislative activity on the Bill hereinabove first mentioned, the doctors conferred with the Governor during the Session of the Legislature on certain of the medical aspects at the State Hospital. After many conferences with certain legislators and with the Governor, it was agreed that the Governor would suggest to the State Hospital Board that it invite the doctors to appoint a five-man advisory committee. This committee would act in an advisory capacity to the Board on all medical aspects of institutional care of the patients.

### *H.B. 266—Providing for Compact for Western Regional Cooperation in Higher Education— Approved*

At the last Annual Meeting of our Association, the State Medical Council requested that the Legislation Committee confer with the Governor and the Board of Regents and other interested parties to explore the possibilities of effecting appropriate legislation which would permit the State of Arizona to join the Compact for Western Regional Cooperation for Higher Education. This action originally was the result of agitation therefor by both our Pima County doctors and the Professional Board of this Association, later to be likewise supported by our Maricopa County doctors.

The Governor manifested a receptive interest in this project and we have reason to believe was responsible for securing the support of the Board of Regents and many of the legislators. As a result of his interest and efforts by our Counsel and Legislation Committee, H.B. 266 ratifying and approving the Compact for Western Regional Cooperation for Higher Education was introduced during the latter part of the Session, approved by both Houses of the Legislature with the "emergency clause" attached and approved by the Governor on March twenty-fifth to become Chapter 104 of the Session Laws of the Second Regular Session of the Twentieth Legislature.

### *H.B. 10—Board of Physical Therapy Examiners Approved*

H.B. 10 creating a Board of Physical Therapy Examiners was signed by the Governor on March 12, becoming Chapter 37 of the Session Laws

of the Second Regular Session of the Twentieth Legislature. This was the third piece of legislation endorsed by the Medical Association.

It is particularly interesting and significant that in spite of the fact that this Legislature and the legislative majority thereof was opposed to the formation of any new boards, and in spite of the fact that in the first ten days of the Session, bills were introduced to create fifteen new boards most of which were never even given serious consideration, those who boards which the Medical Association endorsed (being this one and H.B. 2 described below) were created. I am not quite certain, but I believe that ours were the only two new boards created.

*H.B. 2—Arizona State Board of Nurses Registry  
Approved*

H.B. 2 providing for the Arizona State Board of Nurses Registry and nursing education was signed by the Governor on March 13, becoming Chapter 39 of the Session Laws of the Second Regular Session of the Twentieth Legislature. It does not carry the emergency clause. It sets up proper licensing and supervision of both registered and practical nurses and, as indicated in the discussion of H.B. 10 above, was, I believe, the only new board created with the exception of H.B. 10.

*H. B. 100—Practical Nursing—  
Disapproved*

H.B. 100 provided for a separate licensure board for practical nurses and was not approved by the Medical Association for the reason that it was more properly covered in H.B. 2 above.

*H.B. 80—Board of Collection Agent Examiners  
Disapproved*

H.B. 80 creating a board of collection agent examiners, designed technically to "clean up" the collection agency business, was referred to the Medical Association's counsel for inspection in order to see whether it in any way impeded the activities of the Bureau of Medical Economics run by the Maricopa County Medical Society or in any other way affected the collection of medical bills. It was determined that the Bill, though not apparently harmful, might be construed by the board in such manner as to be obstructive to effective collection of medical bills by doctors or their agencies.

*H.B. 156—Medical Herbalist Board  
Disapproved*

H.B. 156 created a new form of shoestring medicine called Medical Herbalists, setting them

up with a board, examinations, qualifications, and the right to practice, being somewhere half way between chiropractors and naturopaths. Our counsel was instructed by the Association to, if possible, defeat the Bill. The Bill never reached the legislative floor for action.

*H.B. 162—Laboratory Technicians  
Disapproved*

H.B. 162 provided for a Laboratory Technicians Board, licensure, etc. The State Association's Council, together with the Maricopa and Pima Counties' Medical Societies and the Arizona Society of Pathologists, disapproved this Bill. It failed of passage.

*H.B. 146—Exempting Chiropractors from the  
Basic Science Act—Disapproved*

H.B. 146 was designed to exempt the chiropractors from the Basic Science Act. This Bill had a tremendous amount of pressure behind it for passage. The defeat of this Bill required several reports to legislative leaders and numerous conferences with the chiropractors' attorney, Mr. Stanley Jerman. Had the Bill passed it would have opened the door to a parade of exemptions from the basic Science Act contrary to the best interests of our Association and the people of Arizona.

*H.B. 147—Increasing Qualification of Chiropractors—No Action*

H.B. 147 purposed to increase the qualifications for chiropractors to become licensed to practice in the State of Arizona. It was loaded with gimmicks which, among other things, allowed for a chiropractor to be licensed on the basis of experience satisfactory to the board without any education whatsoever. Your counsel had the attorney for the chiropractors himself submit an amendment clearing and correcting all of these gimmicks, after which time no objection was made to the Bill. The Legislature however, clearly understood how contradictory this Bill was to the chiropractors' attempted exemption from the Basic Science Act and seeing the cast of bad faith in the entire chiropractic attempt, did not allow the Bill to clear.

*H.B. 168—Amendments to the Naturopathic  
Practice Act — Disapproved*

This Bill provided for all of the amendments which the naturopaths had asked for in their act last year with the exception of the right to practice obstetrics. Affirmatively stated, the naturopaths were requesting the right to use all drugs and minor surgery with no further edu-

cational requirements whatsoever. The naturopaths succeeded in bringing tremendous pressure on the Legislature to pass this act this year, but our counsel had many conferences with all parties concerned and finally submitted a brief to the Legislature on the entire subject. This detailed brief was sufficient, apparently, to cause the defeat of this bill.

*S.B. BR—State Laboratory Appropriation  
Approved*

S.B. 28 created appropriations for additions to the State Laboratory and at various times disbursement of that Laboratory into several units to be located outside of Phoenix. Our counsel was asked for Association aid in order to keep the State Laboratory entirely in Phoenix which, in this instance and at that time, had to be refused on the basis that it would endanger the rest of the Association's legislative program. The Bill with the "emergency clause" attached was passed and signed by the Governor on March 26.

Our score is "perfect" for this Second Session of the Legislature in which we are humbly proud. Your Legislation Committee wishes to

express its grateful appreciation to the Governor, members of the Twentieth Legislature and others of our Association, with special commendation to our attorney, Mr. Edward Jacobson, whose wise counsel and able leadership guided a successful course, each contributing much of their time and effort in the interest and support of sound health legislation.

Respectfully submitted,  
Jesse D. Hamer, M. D.

Chairman — Legislation Committee

*Addendum No. 1:*

It would be amiss not to say a few words regarding national legislation. The Washington Office of the American Medical Association, through very efficient and effective reporting, keeps this Committee well informed and abreast of all legislation before the Congress of the United States affecting or relating to the practice of medicine. Your Committee in cooperation with a like committee of AMA has again displayed team-work to our mutual advantage in effecting favorable action on several important national measures.

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John Maxwell Chamberlain, M.D., Associate Surgeon, Columbia Univ. New York City.  
Arthur C. Curtis, M.D., Prof. and Chairman Dept., of Dermatology and Syphilology, University of Michigan.  
Walter A. Fansler, M.D., Clinical Prof. of Surgery, Univ. of Minnesota.  
George T. Harrell, M.D., Prof. of Medicine and Head of Dept., Wake Forest College, The Bowman Gray School of Medicine, Winston Salem, N. C.  
Bernard J. Hanley, M.D., Clinical Prof. of Obstetrics and Gynecology, Univ. of Southern California, Los Angeles.  
Chevalier L. Jackson, M.D., Honorary Prof. of Laryngology and Broncho-esophagology, Temple Univ., Philadelphia.  
Charles A. Janeway, M.D., Thomas Rotch Prof. of Pediatrics, Harvard Medical School, Boston.  
Daniel B. Kirby, M.D., Prof. of Ophthalmology, New York University College of Medicine, New York City.

William B. Kountz, M.D., Prof. of Gerontology, Washington University, St. Louis.  
Francis L. Lederer, M.D., Professor and Head of Dept., of Otolaryngology, Univ. of Illinois, Chicago.  
Albert N. Lemoine, Jr., M.D., Prof. of Ophthalmology, University of Kansas, Kansas City, Kans.  
Victor F. Marshall, M.D., Associate Prof. of Clinical Surgery (Urology), Cornell University, New York City.  
John Parks, M.D., Professor of Obstetrics and Gynecology, George Washington University, Washington, D.C.  
John M. Sheldon, M.D., Associate Prof. of Medicine, University of Michigan; Executive Committee, American Academy of Allergy.  
James H. Wall, M.D., Associate Prof., Clinical Psychiatry, Cornell University, New York City.  
C. Stuart Welch, M.D., Prof. of Surgery, Tufts Medical College, Boston.  
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THE HOSPITAL BENEFIT

# Bulletin

Special

Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix

June, 1952

## Question QUIZ

Do you know the answers?

**Q. How many Arizonans were members of the Association when it was organized seven years ago?**

A. 514.

**Q. How many Association members are there today?**

A. Almost 35,000.

**Q. How much did the Association pay out in 1951 on hospital and surgical bills?**

A. More than a quarter of a million dollars.

**Q. May Association members choose their own hospitals and physicians?**

A. Yes. Member benefits are paid to any licensed hospital or to any physician (M.D.) anywhere in the world.

## Association Home Office Moved to New Location

The Hospital Benefit Association moved its Home Office into new, larger quarters at First Street and Willetta, Phoenix, on May 19.

Due to a 700% increase in membership in the last four years, additional space was needed for the personnel required to take care of the increased volume.

### Move Will Help Maintain Prompt Payment

In 1951, there was a 50% increase in the amount the Association paid on members' hospital and surgical bills. In order to keep up its record of prompt payments to physicians and hospitals, the Association's Underwriting Department has been expanded in the new location and will be able to handle additional increases.

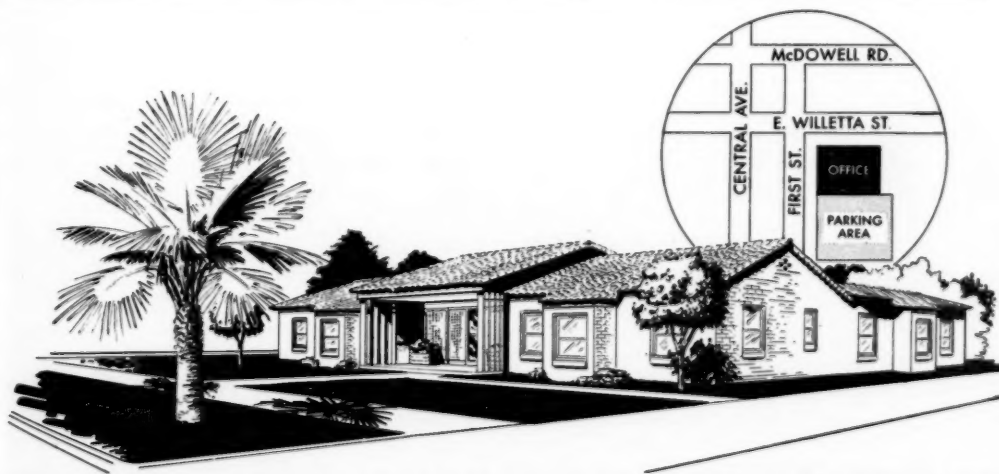
### Two Branch Offices

In addition to the new Home Office at First Street and Willetta, the Association will continue operation of a downtown office at 407 Professional Building, Phoenix. This office will be maintained for the sole purpose of receiving membership dues. All records pertaining to hospital and surgical benefits have been transferred to the First Street at Willetta office.

The Association's Tucson office at 706 Valley National Building will also be retained.

### Physicians' Cooperation Helped

The Hospital Benefit Association appreciates the cooperation of the physicians of Arizona in helping make this growth possible, and your suggestions for improving its service will be welcomed.



Attractive new Home Office of the Hospital Benefit Association, First Street at Willetta, Phoenix. Location of office is shown on map. James S. Mecham, Phoenix, was the general contractor.

## **PUBLIC RELATIONS BOARD 1951-52 Annual Report**

During the year it has been found necessary to discontinue publication of the "Health Activities Bulletin" with completion of the June, 1951, edition. Most of you will recall that this public relations media was designed to bring to the people of Arizona, timely health subjects and topics of interest in keeping with the rapidity of medical progress on both the local and national levels. The "new look" or revised edition was developed for release on a bi-monthly basis in anticipation of a 10,000 circulation throughout the state, and at no cost to the Association, supported through paid advertising. The goal was never achieved and the publisher requested and was granted contractual release, the result of his inability to obtain sufficient advertising to meet expenses. An advance loan of \$2,500 by the Association to the publisher is presently being satisfactorily amortized. Effort is being continued to reactivate this project; however, despite numerous conferences and search for a qualified publisher, the objective has not been reached to-date. Finances do not permit underwriting the entire cost by the Association. With rising labor and material costs, an outlay of approximately \$2,200 per issue would be required. Reducing the size of the bulletin and circulation would achieve a lesser expenditure but it has always been felt that reduction in circulation below a certain minimum would make the value of the endeavor questionable. In any event, the cost seems prohibitive without supporting advertising.

Our second discouragement was the discontinuance of the column "To Your Health" in the Sunday edition of the Arizona Republic. Medical subjects prepared and contributed by the membership for lay consumption appeared in the local press for an extended period of time. In canceling this privilege, effective in April, 1951, the publishers reported that newsprint shortage necessitated such action. Some of us, however, believe that lack of reader interest and appeal is more probably the underlying cause.

The Board met in July, 1951, and again during the latter part of November when Mr. Lawrence W. Rember, Field Director of the Public Relations Department of A.M.A., spent several days with us reviewing our program and making us all more closely aware of our mutual objectives.

Your Chairman along with the Secretary and other members of the Association, including the Executive Secretary, attended the Fourth Annual Medical Public Relations Conference held in Los Angeles, December second and third, in conjunction with the AMA Clinical Session. The interest in this meeting was manifest by the large and growing attendance each year from every section of the country. "Joining Forces for Better PR" was the theme with emphasis on the "grass roots" level. Review of major medical and public opinion surveys undertaken during the year was presented, followed by numerous panel discussions on what is considered the No. 1 PR problem today, "The Cost of Sickness." While there remains much to be accomplished to improve the doctor-patient relationship, it is worthy of mention that the establishment of effective "Emergency Call" systems, of necessity on the local level, and continuance and expansion of "Grievance Committee" activities, continue foremost nationally in PR objectives to be achieved. Arizona is far advanced in these accomplishments.

A "speakers panel" maintained, made it possible to satisfy all requests received from civic, educational and society groups to supply medical doctors to address them on selected health subjects. Likewise, participation on radio and TV programs was arranged. In this latter field, development of a medical program as a public service is being given serious consideration.

Distribution of "Your Doctor" pamphlet continued and received national recognition. Aside from gratifying response and extensive distribution within the state through the cooperation of Association members, many states were supplied with copies for review and local distribution, particularly, Pennsylvania, the result of AMA "PR Doctor" promotion. It is possible we may be called upon to consider a "reprint" in the new year.

Several local press conferences were held during the year and it can be stated there has been marked improvement through better understanding in local medical news reporting. Development of an annual press-radio conference on a sectional state-wide basis will be given high priority in proposed activities of your Board in the immediate future. Recognizing the mutual, ethical, moral and legal responsibilities of the medical profession, the press and the radio to the public, the Colorado State Medical Associa-

tion several years ago undertook such a project in the interest of improving press relations. There followed, in due course, the establishment of a "Code of Ethics", now in practice, heralded by all participants as an important medium of mutual understanding and cooperation. Its success has commanded national interest and many state associations are now pursuing a similar course or being urged so to do.

During the current fiscal year a sum of \$4,000 was appropriated to the Board of Public Relations for its work. Through judicious administration, it is not anticipated this entire sum

will have been expended by the close of this term. The forces of socialism are less apparent and present today and we must be ever alert and ready to meet whatever problem may lie ahead. Public relations is a continuing process as important today and tomorrow as yesterday. Its activity should be continued and expanded consistent with need and available finances. We would recommend an appropriation no less than that current for the new fiscal year.

Respectfully submitted,

William B. Steen, M. D.

Chairman — Public Relations Board

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## Woman's AUXILIARY

### CONVENTION REPORT

The twenty-second Annual Convention of the Woman's Auxiliary to the Arizona Medical Association convened in Phoenix on May 1 and 2. One hundred women registered during the two days and almost every county in the State was represented. The weather was perfect and thanks to the efficient planning of Mrs. Rudolph and her Convention chairman, Mrs. George A. Williamson and Mrs. Harry J. French, the business sessions moved smoothly and the entertainment was delightful.

The Brunch, which was held on Thursday morning at the Phoenix Country Club, was attended by eighty-five members, despite the early hour. After a delicious meal, Mrs. Rudolph opened the first session of the Convention with a few words of greeting. Dr. George Hunter Hall, pastor of the First Presbyterian Church of Phoenix, gave the Invocation, following which Mrs. Thomas Woodman, immediate past President of Maricopa County Auxiliary welcomed the members to Convention and urged them to prize dearly their Americanism, the freedom of medicine and private enterprise and the privilege of exercising their power to vote. We should all pledge ourselves to the task of going and getting others to the polls to vote for a government that will see to it that our Freedom is preserved. Mrs. Donald E. Nelson, of Graham County Auxiliary gave the response.

The reports of the State Officers were streamlined to the point of brevity, but plainly showed the splendid work which had been accomplished during the year. Mrs. William F. Schoffman, President-elect, reported that she had attended the Conference for Presidents and Presidents-elect in Chicago in November and had given her report on this meeting to all County Auxiliaries.

The State Auxiliary closed the year with 394 paid members, an increase of 44 over last year. Three new Counties were organized, bringing the total of County Auxiliaries to seven. A NEWSLETTER was inaugurated this year and

sent to the wives of all doctors-at-large. It was voted to send the letter next year to all doctor's wives throughout the state and it is hoped that a correct list of home addresses may be obtained in order to be sure that the women receive their copy and thus keep informed of happenings on county and state levels.

Today's Health chairman reported 338 subscriptions sold, an increase of nine over last year. Pima and Yavapai counties placed fifth and sixth in their groups in the National contest. Bulletin chairman reported that 147 Bulletins were purchased by members this year, an increase of seven over last year.

Public Relations and Health chairmen reported that four out of seven counties sponsored the Radio Health Program and plans are being made to carry on with these programs next year. These counties were Pima, Graham, Gila and Yavapai. Nurse Recruitment was the project of Maricopa and Pinal counties and will be continued next year. Reports of both these programs have been written up in this magazine.

Seven girls have received aid from the State Student Nurses' Loan Fund during the past two years. One of them has graduated and has begun to repay her obligation.

Four more girls were selected at the pre-convention meeting of the Student Nurses' Loan Fund Committee and will begin receiving their aid upon their entrance into Nursing School in the Fall. Generous response from the membership of the Auxiliaries has made it possible to help, through the loan, these eleven girls. Special mention this year goes to Yavapai County for a \$69.00 gift to the Fund. Pinal County members voted to include their Loan Fund contribution in their dues for the next five years.

The Legislation committee was most active this year in disseminating information to the members at county meetings, in the NEWSLETTER and ARIZONA MEDICINE, by publish-



ing a pamphlet "How and Why to Write our Congressman" and by writing a humorous skit "The Life of the Party" to instruct members as to how a bill is passed. It also initiated a card index showing member's name, legislative district, name of her respective U. S. and State senators and representatives.

The Publicity chairman has seen to it that twelve articles for ARIZONA MEDICINE were written by Auxiliary members and has secured good newspaper coverage for all special events.

Civil Defense has been brought to the notice of the membership through distribution of pamphlets, reports of meetings of the State Civil Defense group and by articles urging members to assist this program in every way possible.

Doctor's wives are found working in every volunteer service group throughout the State and giving financial aid also through their local county auxiliaries. The State Auxiliary gave \$50.00 to the American Medical Educational Fund and is proud that we are one of the States that met this recommendation from National.

The Historian has initiated the formation of an historical file to be kept at the central State office. This file contains data pertinent to the origin and growth of the organization. A scrap book contains all publicity material.

Mrs. Enfield, 1st Vice President, took the chair while Mrs. Rudolph gave her President's report. This fine report will be printed in the next issue of Arizona Medicine. It gives the key to the success that the Auxiliary has enjoyed this year under Mrs. Rudolph's stimulating leadership.

The second general Session of the Convention was called to order at 10:00 A.M. on Friday, May 2, by Mrs. Rudolph in the Lounge at the Westward Ho. Greetings were given by Maricopa's President, Mrs. A. E. Cruthirds. The guest of Honor, Mrs. Harold F. Wahlquist, National Auxiliary President, was introduced and said a few words of gracious greeting. Mrs. James R. Moore conducted a simple but impressive Memorial service for Mrs. C. R. K. Swetnam of Yavapai, Mrs. R. J. Cron of Gila, Mrs. James Barger of Maricopa, who have passed on during this year.

The President of each County Auxiliary read her year's report, the results of which have been shown in the reports of the State Officers.

However, these reports were most interesting and worthwhile and each county is to be commended upon their splendid achievement.

Mrs. Wahlquist installed the following State Officers who had been elected at the first Session:—Mrs. William F. Schoffman, President; Mrs. George S. Enfield, President-elect; Mrs. Brick P. Storts, 1st Vice President; Mrs. Hugh C. Thompson, 2nd Vice President; Mrs. Louis Hirsch, Recording Secretary; Mrs. R. Lee Foster, Treasurer; Directors—Mrs. J. H. Allen, and Mrs. R. W. Rudolph for one year; Mrs. T. C. Harper, for two years. The new President then took the chair and gave her inaugural address, which will also be printed in a future edition of this magazine. After the reading of the minutes by the Secretary and their approval, Mrs. Schoffman declared the Session adjourned.

Eighty-six members sat down to luncheon in the Corinthian Room of the Adams Hotel honoring the National President and listened to an enthusiastic and inspiring address by Mrs. Wahlquist. Mrs. George A. Williamson presided and introduced the other honor guests at the head table. They were Dr. Harry T. Southworth, immediate past President of Arizona State Association, Dr. Thomas H. Bate, President of Arizona Medical Association, Dr. Frank J. Milloy, Secretary, Dr. Jesse D. Hamer, Delegate to the AMA, Dr. A. I. Podolsky, Chairman of the Council.

An Art Exhibit of pictures painted by Arizona Doctors was held for the first time this year and enjoyed by everyone. Mrs. Howell S. Randolph of Phoenix and her committee gathered and hung the pictures.

The Convention closed, as far as the women were concerned, with a gala evening with their husbands at a cocktail hour and dinner-dance as guests of the Arizona Medical Association. A good time was had by all and we parted to go our separate ways until Fall when we meet again in our small groups to plan and work toward another State Convention.

Respectfully submitted  
Mrs. George Enfield



### Changes In the Membership and Fellowship Structure of A. M. A.

- 1918 to 1949 Prior to 1950, and since the year 1918, all physicians who were active members of their State Society were non-dues paying members of the American Medical Association.
- Of the 144,211 members of the A.M.A. in June, 1949, 77,723 were listed as fellows. Fellows paid dues to the A.M.A. and received THE JOURNAL A.M.A.
- 1949 The House of Delegates of the A.M.A. assessed all members of the A.M.A. \$25.00, but this assessment was voluntary and not compulsory. This was the only assessment made.
- 1950 There was no assessment in 1950. The A.M.A., for the first time, set the dues for membership in the A.M.A. at \$25.00 a year. If these dues were not paid by the end of the year the member was dropped for non-payment; before he could be reinstated, it was necessary for him to pay the delinquent year's dues. The 1950 dues did not include a subscription to THE JOURNAL A.M.A. A member in 1950 again had to pay fellowship dues to receive THE JOURNAL A.M.A., or could subscribe to it separately.
- 1951 The membership dues in the A.M.A. in 1951 were \$25.00 and included a subscription to THE JOURNAL A.M.A. Fellowship dues were reduced but no longer included a subscription to THE JOURNAL A.M.A.
- 1952 The same as 1951, except that there are no fellowship dues and fellowship cards are not being issued. Fellowship will probably be abolished after the Annual Meeting of the A.M.A. in June, 1952.

The following summary will further clarify the changes from 1949 to 1952:

	Membership In the American Medical Assn.	Fellowship In the American Medical Assn.	Subscription Price Of The Journal A.M.A.
Year	Membership dues in the A.M.A. never included Fellowship dues. Membership dues have been payable only thru the County and State Societies.	Fellowship in the A.M.A. was dependent upon membership in the State and County Societies and the A.M.A. Fellowship dues were payable to the A.M.A. and were in addition to the membership dues.	Since January 1, 1951, the price of THE JOURNAL has been included in membership dues; rates below for 1951 and 1952 are for non-members, and laymen. Anyone may subscribe to THE JOURNAL.
1949	Assessed \$25.00 but payment <i>not compulsory</i>	Dues of \$12.00 <i>included</i> THE JOURNAL A.M.A.	\$12.00
1950	Dues of \$25.00 <i>did not</i> include The Journal.	Dues of \$12.00 <i>included</i> THE JOURNAL.	\$12.00
1951	Dues of \$25.00 <i>included</i> THE JOURNAL.	Dues of \$5.00 <i>did not</i> include THE JOURNAL.	\$15.00
1952	Dues of \$25.00 <i>included</i> THE JOURNAL.	No fellowship dues for 1952.	\$15.00

## MEDICAL DEFENSE COMMITTEE

### 1951-52 Annual Report

Since the Annual Meeting of 1951, \$1750 has been expended on two cases of alleged malpractice filed against Society members.

Nine (9) cases in various stages of litigation, previously filed, continue of record, one having been disposed of during the year through trial by jury, the verdict in favor of the defendant physician. During this same period, to-date only one (1) application for medical defense has been received from the membership and placed on file with Committee approval.

The Treasurer of this Association will, of course, submit a detailed report on the financial status of the Medical Defense Fund. Latest information available reveals that this fund presently approximates \$38,579.79 of which slightly less than \$36,000 is in government bonds, the balance in cash in bank depository.

Clarification of the intent of the action of the House of Delegates in 1950 relating to "approval" by this Committee of all applications filed for medical defense by qualified member physicians was sought. Cases have been routinely approved in the past without judgment as to which should or should not be "deemed necessary" for defense, the Committee lacking investigatory facilities and being of the opinion that they are not in a position to properly judge. Subsequently, Council directed that the Grievance Committee act as a "Board of Review" of cases coming before this Committee, and recommend which ones should be given legal support, to be financed out of the Medical Defense Fund. The Grievance Committee determined that it should not be called upon to make such determination which, in effect, would be prejudging its merits. It is felt by that Committee that each (qualified association) member, having contributed to the support of the Fund through allocation of a portion of his or her annual dues appropriated therefor, is entitled to legal assistance whenever requested. It directed that Council be informed of its views, with the hope that following further review of the subject by its members, it will in its wisdom see fit to direct the Medical Defense Committee to accept all cases for legal defense when requested, regardless of merit. Council at a meeting held Janu-

ary 13, 1952, direct that this report be not accepted and referred to its proper (Medical Defense) committee. Unless other action is taken by the House of Delegates, the Medical Defense Committee will, of necessity, approve all cases which apply for aid.

The Medical Defense Committee again recommends:

1. That one dollar yearly deduction per member for medical defense be continued.
2. That the Medical Defense Fund (Reserve Fund) be for medical defense solely, the purpose for which it was originally intended.

The Medical Defense Committee wishes to bring to the attention of the members of the Association that suits are increasing in number and that they are for much higher amounts than in past years; and that some Insurance Companies are canceling policies held by physicians or refusing to issue such policies. It is also the feeling of the committee that careless or thoughtless talk or conversation by member physicians has in some instances been a large factor in bringing about the increasing difficulties above detailed.

Respectfully submitted,

Otto E. Utzinger, M. D., Chairman

## HILL-BURTON GRANTS

### STATE OF ARIZONA

The American Medical Association, Washington Office advises that the Division of Hospital Facilities, FSA, reports that as of March 31, 1952, no new projects has been approved for Hill-Burton grants in the State of Arizona.

Status of all Hill-Burton hospital construction in this state is as follows:

*Completed and in Operation:* 7 projects at a total cost of \$3,340,593, including federal contribution of \$1,132,562 and supplying 246 additional beds.

*Under Construction:* 2 projects at a total cost of \$6,086,549, including federal contribution of \$1,523,230 and designed to supply 375 additional beds.

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